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FOUR LECTURES

ON THE



ORGANIZATION OF INDUSTRY;

BEING PART OF A COURSE DELIVERED

IN THE UNIVERSITY OF CAMBRIDGE

IN EASTER TERM 1844.

Revised
Charles BY
T. C. BANFIELD, Esq.

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PREFACE.

THE chief desire of the author of the following Lectures was to call attention to the opinions recently promulgated by some continental Economists. This subject has grown upon him as he proceeded, and he has perhaps deduced more from the positions of those authors when combined, than they ventured to attach to them while they remained isolated. M. de Rossi's assertion, that value is essentially *subjective*, or conferred by the estimating party rather than an inherent quality in the object valued, causes a total revolution in economical science. It makes the wants, the tastes and the feelings of men the standard of value, whose exponent is then to be sought in the extent to which an object is consumed. This view demands of producers at least as much attention to the physical and mental improvement of their consuming fellow-citizens as to the mechanical operations by which production is promoted.

The second novel proposition to the English reader contained in these lectures, is M. Hermann's adoption of *the relations that grow up between man and man*, as a portion of the wealth and capital both of individuals and of nations. This is indeed a natural sequence of the former proposition, which it illustrates and completes. It recognizes the economical value of the family

M. de Rossi

1911/12

and of the national ties. The finer feelings are not degraded to the level of sordid calculation by this assertion; but the science is raised out of the narrow sphere of material calculations, to the more elevated region of the prouder attributes of man. It is on this ground alone that the discrepancies which now render social life so difficult a problem can be reconciled. The author trusts that he has done no violence to this new and welcome idea, by applying it generally to the results of association. He has endeavoured to point out the true value of association, which has been so falsely appreciated by many ardent philanthropists. The aim of association is to obtain and secure individual liberty. Thus association stands in some measure in the same relation to freedom that capital does to income,—in that of cause to effect. Association is but a means wherewith to attain the end,—individual freedom of action and of enjoyment. Upon this argument the author rests his objection to Fourier's and Owen's doctrines, which recommend the sacrifice of individual freedom for the purpose of obtaining an effective association. This is indeed no other than the doctrine of conquerors and centralizers generally, who recognize no union save one of form. It is however needless to point to the whole course of history, as proving that the natural progress of society is one leading from what is oppressive in forms to independence on external distinctions; while at the same time a tendency to intellectual conformity is the more certain, in proportion as the pressure of outward restraint is the less felt. Hence the strong patriotic feeling in republics, and hence the ambitious feeling in all men to strive after equality, where all are equally at liberty to exert their abilities and to enjoy the fruits of their labour.

The classification of human wants, as the shape in which the element of necessity presents itself in economical science, is only new in the place here assigned to it, as is shown by the references to ancient writers. This classification presents us with the true ladder of industry, and throws light upon many important questions now in agitation. By establishing a limitation to the power of estimating conferred on man, it gives a positive direction to his activity, and thus affords a basis for scientific calculations in political economy.

A pleasing result of this classification is, that while, on the one side, it takes cognizance of the lowest wants of man, it is, on the other, unbounded in the height which it can reach, and fixes no limit to the aspirations of the human mind. The importance of this addition to the maxims of MM. de Rossi and Hermann will not be mistaken. The bold truths those writers have advanced are reconciled with the dependent position of man towards his Maker by a fixed classification of the slight burdens attaching to his existence.

The author will feel truly happy if he has in any way contributed to demonstrate the folly of imposing artificial burdens, in addition to those inevitable restraints. Unlike the slight burdens pointed out as inherent in man's nature, and which are the source of pleasurable emotions when lightened, the artificial restrictions imposed by men upon their fellow-creatures are barren of joy as they are of utility. The amount of wealth (in the comprehensive sense of the word, which extends it to intellectual as well as physical enjoyment,) that man is destined by nature to command has never yet been fathomed in any age. But for the present our speculations are confined to the means most likely to lead us into a position, where we can safely allow our thoughts

to stray into the boundless vista of intellectual refinement, in anticipation of the time when our progress in it will alone be deemed worthy of attention.

If some readers think the author has gone out of his way to attack what is known by the name of the "Ricardo Theory of Rent," after the complete exposure of the fallacy upon which it is founded by the Rev. Professor Jones, they must bear in mind that it has recently been reproduced in a prominent manner in Mr. M'Culloch's Notes to Adam Smith's Works, and that it forms the sole ground of the lamentable, but equally erroneous, notion that high prices of corn are necessary to ensure high rents. Foreign political economists have not given themselves the trouble to refute this theory in detail, which never was admitted abroad to bear even a semblance of truth. But that all the mischief to which it is said in the following lectures to be likely to lead, was equally appreciated on the Continent, may be inferred from the remark of M. Eugene Buret,—"*Pour M. Ricardo les hommes ne sont rien, les produits sont tout.*"

The author is aware that he owed the honour of being allowed to publish his opinions at the distinguished University, to whose liberality he is proud to acknowledge himself deeply indebted, to his promise that he would communicate the views of continental writers. He will therefore be excused if he has chiefly confined his quotations to foreign authors, and has not everywhere acknowledged his obligations to the better-known works of English Economists.

Wiesbaden, June 30th, 1845.

ON THE ORGANIZATION OF INDUSTRY.

LECTURE I.

GENERAL PRINCIPLES.

1. IN availing myself of the liberal permission granted by your Vice-Chancellor, with the concurrence of the Professor of Political Economy in this University, to invite your attention to some subjects connected with that science, it cannot be my intention to offer a complete course of its principles. For acquiring a general knowledge of the principles of political economy, you command, gentlemen, sufficient means; and the attendance with which you have today honoured me shows that you do not need to have the importance of this study impressed upon you.

I propose on this occasion to confine myself to the consideration of some points which have a direct bearing on *production* and *consumption*, and in which I find it essential to modify or to dissent from views propounded by several English writers. Without establishing these points in a satisfactory manner, it is useless to attempt an analysis of the resources of producers or of the claims of consumers. Some principles that foreign authors have laid down seem to guide us nearer to the economical foundation of productive industry than our own authorities have done, and to the works of these writers I wish especially to direct your attention.

It is singular that the compound term *Political Economy* should be used to express the same idea which the Greeks indicated by the simpler expression *οικονομία*. In antiquity the whole activity of the citizen was absorbed in the idea of the State, from the interests of which the interest of no individual was regarded as distinct. Modern history records the introduction of

many considerations into the elements that constitute a State, which, in rendering the idea more complicated than it was for the ancients, admit a wider sphere for the activity of individuals. A citizen's moral as well as material relations to other States besides that which he inhabits are recognized*, and form no less an object of solicitude for modern statesmen than the relation in which the citizen stands to his own country. That this extension of individual exertion, and the consequent enlarged sphere of the economist, does not necessarily efface the influence of national distinctions, is in part proved by the substitution of the term political economy for the simpler expression of the Greeks.

The Greek νόμος most nearly translates the English word "rule." If οἰκονομία may be translated "house-rule," our term "political economy" denotes "the rule of the household of a State,"—a phrase that is used instead of "political economy" in Germany†. The term *rule* suggests the idea of something *ordered* with a view to *organization*. It is essential to bear in mind this interpretation of the word *rule* throughout all speculations of political economy, chiefly because in common discourse the synonymous term *economy* has acquired a different signification,—that of *saving* or *abstinence*. But, important as the saving or sparing of resources must prove to the economist, I need hardly add, that mere abstinence is but a part of the *rule* which, either in the household of a state or of an individual, is to lead to wealth, to dignity, or to power. In the course of these Lectures I shall use the terms *economy* and *to economize* in the sense of *rule* and *to rule*.

2. What the political economist aspires to, and what the laws of his science must teach, is to economize power.

The term power is used by the politician and by the mechanic in two different although analogous senses. The acceptation in which the political economist uses the word power, includes and combines both, inasfar as they contribute to the welfare of society. A highly successful and justly respected searcher after principles in another scientific field, M. Liebig, remarks:—"Civilization is the economy of power; science teaches the simplest means of obtaining the greatest result with the least exertion of power. Every useless exertion of power in agriculture or the other branches of industry, as in science and in politics, is

* See J. B. Say, *Cours Complet*, &c. Paris. 1840. I. 10. p. 134.

† *Staatshaushaltung—Staatswirtschaft*.

characteristic of barbarism, and marks a deficiency of civilization."

The faculty of calculating the economy of power is essentially an attribute of the human species. Were it not so, some of the animal creation would be able to compete successfully with man. Man's power is therefore intellectual in its nature. Man is unable to enter into bodily conflict with the greatest number of the other animals, while against the forces of nature at large he may be said to be physically powerless. It is the intellect of man which enables him to form combinations to withstand the forces of animals or of the elements. Each step forward in the exertion of this power lays a foundation for future progress*. Reason, therefore, the distinguishing attribute of man, is the source of human power, and since without knowledge man is unable usefully to exert the gift of reason, it is evident that knowledge is essential to economical power. The experience of this truth has given rise to the popular saying, "Knowledge is power."

3. But in the adaptation of animal, mechanical or chemical force to means for obtaining his ends, man exerts no godlike or creative power. The efforts of inventive genius that we most admire are nothing but discoveries within the pale of nature. The sail spread to the wind, the weight of water applied to a wheel, the pressure of steam upon a more complicated mechanism, the galvanic fluid set in motion, or the pressure of the atmospheric column upon a vacuum,—what are these but natural forces, adapted by man to his special purposes? Man could not have invented them, nor could he have organized their operation in the manner in which we see them in nature so beautifully harmonize, or so beneficially counteract each other's might.

The discovery of these agents, and of their proper use, constitutes but a part of economical knowledge. The knowledge that confers power is not alone the knowledge of books or of the traditions of crafts, not the skill of the practitioner of any art, or even the wisdom of the naturalist who lays open the mysteries of the animal or vegetable creations, or of any other single portion of the universe,—but that transcendent knowledge which comprehends all these, and goes beyond them,—the knowledge

* Mr. Senior founds the whole science of political economy on a moral propensity in man, in his first axiom: "Every man desires to obtain additional wealth with as little sacrifice as possible."—*Outline*, p. 139.

of man's place on earth as the favoured creature of Heaven, the deputed master of the globe that he inhabits*. In proportion to the skill with which man uses this knowledge, which enables him to work through the agency of secondary causes, he realizes the bold assertion, that he is made after the image of his Creator. The faculty of discerning the means wherewith to attain his ends is the source of his sovereignty upon earth. Endowed with this faculty, he is thrown naked into a world rife with animal, chemical and mechanical conflict: his portion is that which he subdues and appropriates from the vast fund of nature.

4. Every addition to human power is the result of a discovery either of some new agent, or of the combinations of which known agents are susceptible. It is therefore more correct to say that these forces are economized, than to suppose that they are produced, by discoverers and inventors. The process of advancement in the economy of power is that of analysing the field of nature, or of a simplification of the uses to which we put the agents already known. We can only save and turn to better account the means already at our disposal, or adapt to our use means that have hitherto been wasted or neglected. In short, improved processes rather remove obstructions to the use of any force than add to its intensity. Since the perfection of mechanical or chemical processes can extend no further than the overcoming of all the difficulties that impede the exertion of human power, and we are authorized to suppose that the mind of man is capable of devising means to overcome all physical obstructions, we must conclude that the exercise of human power, when raised to its highest pitch, must have a field of action that lies beyond the conflict with difficulties. We must then acknowledge that the true sphere in which human power ought to be exerted is in enjoyment. To imagine that there will be no tasks or duties for the employment of our power when the impediments to its exertion are overcome, is to estimate the position of man below that of the brute, whose necessities are provided for without other exertion on its part than of its instinct. Man's proper task and fitting duties cannot be limited to the contest with difficulties which he is destined to overcome; and these difficulties, which are, economically considered, mere impediments

* "Or c'est la connaissance de ces lois naturelles et constantes, sans lesquelles les sociétés humaines ne sauraient subsister, qui constitue cette nouvelle science que l'on a désignée par le nom d'Economie Politique."—*J. B. Say, Introd.* i. 3.

to his progress, can have no moral value. For the political economist, these difficulties present a field of contest on which he feels convinced that human intelligence must be victorious; whereas the store of wealth provided for man will remain to be enjoyed when all impediments to its appropriation are removed.

5. From the nature of human power must be concluded that it is not, like the power of brutes, confined to any particular organ of the body, or to any instrument natural or artificial. Neither the forehead, as in the bull, nor the shoulder, as in the horse, nor the digital members, as in the feline tribe, can be pointed out in man as the seat of his power. The attainment of skill in the exercise of any member of the body cannot therefore belong to the economical means of attaining any object. Neither is human power limited to any instrument or natural force. Neither land, nor water, nor steam, nor any chemical agent, can be regarded as the exclusive seat of power. Human reason has at its disposal all the forces of nature and all the combinations of art. Nor is this power inseparably bound to any of those social combinations to which man resorts under the pressure of necessity, or by which he seeks to gratify his aspiration after power. As long as the circumstances in which they originated continue, such combinations may be a means of power, but no such arrangements are invariable and at all times useful.

Man is not alone a powerful being,—he is above all a free agent. Upon the freedom which is given to him is based his responsibility, which is individual. He would not be free, if in every exertion of his power he was fettered to the use of some particular instrument or combination.

6. I have remarked that man is destined to attain his ends by the means of secondary agents. This is confirmed by the well-known distinction that prevails between the human species and the brute creation. No animal but man uses a tool to work with: consequently no action of any brute animal demands a reasonable calculation. With man, on the contrary, every act requires a calculation of the fitness of the means employed to the end sought; and the exertion of reason is indispensable in all he does.

We may conclude that the greater power is given to man, that he may command a greater number of objects for the gratification of his desires, and such as are of a different nature from

those sought by the other animals. As in nature all means are beautifully and exactly suited to their ends, we cannot but infer that the full exercise of human power, and the complete enjoyment of the benefits it can command, are indispensable to place man in his proper position. Any circumscription of this larger measure of advantages, any curtailment of the enjoyments they produce, must be painful and humiliating to man, and must limit his intellectual power.

The lowest state of physical degradation is that in which man is compelled to work as an unthinking instrument for his fellow-men. To this state men have invariably been reduced where slavery prevailed. Slavery has ever been based on a wrong estimate of human power. Had human power been acknowledged as intellectual in its nature, slavery would never have existed.

The lowest state of moral degradation which society attains is when man so little respects his fellow-man, and appreciates his aid so low, as wilfully to destroy him.

2 7. The most convincing proof that can be found of the impropriety of looking to man's bodily force as an instrument of power, is deduced from this fact, that his force is nearly useless without the aid of a tool or machine of some kind. The simple bodily force of a labourer is the worst requited of any that can be borrowed. A slave is a burden to a man who cannot supply him with a tool to work with. According to the utility of the instrument, of which a man understands the use, will the wages which he receives be high or low. The labour of the helmsman is better requited than that of the common sailor: the captain is more highly esteemed than either. It is difficult, in the present confused view of this subject that prevails, to trace the exact proportions in which labour is requited: the most economical use of power would, however, everywhere bring about a gradation of wages based upon this principle. That a man exerting mere muscular strength has a right to as high or a higher remuneration than one who exempts himself from bodily labour, cannot be asserted, because, bodily force being the weakest agent of human power, man has his reason bestowed upon him to enable him to use more efficacious means. In accordance with their ability to free themselves from bodily labour, will be the remuneration of men who employ intermediate agents in seeking their own ends or the furtherance of those of others. A simple economical calculation shows that where most is

produced, there must be the most to divide amongst the producers.

8. The *necessity* for employing involuntary manual labour is a result either of ignorance, which has prevented our devising mechanical processes to supersede it, or of indolence, which remained contented with its results. The latter was chiefly the case in antiquity, where the large proportion of slaves maintained in every state afforded the free citizens the advantages attending freedom from labour. The example of antiquity was stronger in the first ages of modern history than the precepts of Christianity, with which the practice of the Church of Rome did not accord. The contests of the Italian cities for freedom with the Popes and with other temporal powers, show the difficulties with which the aspiring mind had to contend in the middle ages. Before their reduction under the yoke of despotism, the Italians had just time to communicate the inventions which they had either brought direct from the East, or to which they obtained the clue in Asia to the cities of Germany and the Low Countries. The secure position of these corporations during a certain period allowed of the practical adoption of these inventions in industry, and they laid the foundation of that intellectual freedom which the succeeding age achieved. But only in the last and the present centuries have we attained confidence in treading the path that must lead to the full consciousness of our power, which is by the substitution of machinery for hand labour.

We have no reason to dread any want of occupation from the removal of those restraints on human freedom which now condemn men to drudgery. On the contrary, man's keenest spur to activity will be only felt when constraint ceases to paralyse his aspirations. The need of bodily exertion to preserve health, and the inducement to mental activity which the prospect of success holds out, will cause greater because cheerful and voluntary labour to be undertaken by men than they performed when under the bondage of ignorance. The example of the ancient Greeks and of the emancipated classes of all ages shows, that games, sports, chivalrous or warlike enterprise, ever succeeded where the necessity for labour ceased. There can be no reason why all the tasks that, under the pressure of necessity, bear an ignominious stamp, should not, when that pressure is removed, be considered attractive exercises of the mind or the body. Daily experience furnishes examples of this change. The

difference in the feeling with which an oar is handled by a galley slave and by a gentleman in a boat-race, is a type of the change to which we may look forward when machinery shall have removed the necessity for manual labour. The inspiring toil of enjoyment will only succeed to the dispiriting drudgery under the yoke of necessity that now prevails. Another contrast, by no means foreign to the range of economical speculation, is afforded by the labour which men under the influence of love freely undertake when compared with any forced drudgery.

9. The most rapid progress in economizing power is made by means of association.

The combined intellectual exertions of any number of men who freely unite to accomplish an end, exceed by far in power the exertions of the same number when isolated. The power we command is augmented in a rapid progression with constantly increasing ratio, in proportion to the numbers that unite to attain a common end. Upon the experience of this truth the social tendencies of man are based. Hence a sound system of economy is at the same time a good social system ; but, in order to be effective, it must be freely chosen by those who adopt it. No economy or organization of power is acceptable to man which militates against his proudest attribute, his freedom of choice. The name Political Economy (§ 1.) is derived from the present most prominent species of associations in states or political combinations. A state cannot be otherwise defined than as an association into which men enter for the attainment of common ends. These ends may however be attained under different circumstances, according as knowledge provides various means for their attainment. Hence history presents us with a constant series of changes in the size and organization of states, which can generally be traced to the difference in the wants of men, and in the means of satisfying them, which increasing or diminishing knowledge brought about. Political divisions must therefore be regarded as arbitrary, or as dependent upon man's momentary necessities, and as such they offer no sound foundation for economical speculations*. The principles of political economy must be true in all states, whether

* " L'organisation artificielle des nations change avec les temps et avec les lieux. Les lois naturelles qui président à leur entretien et opèrent leur conservation sont les mêmes dans tous les pays et à toutes les époques."—*J. B. Say, Considérations Gén., i. p. 2.*

large or small, and must be best illustrated when all states combine to attain the common end, the welfare of mankind. There can therefore be no more an exclusive national system of political economy, than there can be a conventual or a communal system, as distinct from the general science. National exclusive distinctions may serve some momentary purposes, as conventual associations once did, and as it is conceivable that under certain circumstances of oppression communal exclusive associations might likewise be beneficial. These limitations of the natural law of association, which is based upon the increased power that men by associating command, are however each an evil, to which men only resort in order to escape from some greater evil.

The world now contains political associations of every possible size, varying from the few families that compose a horde of Afghans or Kurds, to the hundreds of millions of inhabitants that form the British and Chinese empires. The laws of political economy must be true in each, and for all of these associations, and can depend upon the size of none. The number of members united to economize power by association is therefore a means, and not an end, for the political economist. A natural tendency of man is to associate in large masses, because in such power is best economized. A disposition to separate, and to break up into smaller masses, is an irrefragable proof of some error in the guidance of the economical progress of a state which demands careful investigation. The size of an association is however only indifferent to the political economist when this circumstance offers no impediment to the multiplication of power by further association. The object of all associations of reasonable beings is to obtain, by united power, what each when isolated could not command. An association formed with a view to isolate its members from their countrymen, or from the rest of the world, involves an absurd economical contradiction. Such an association recognizes, on one side, the increase of power derived from association, but rejects the principle when it would prove most efficacious.

The leading characteristic of modern political associations is of an intellectual kind. It is formed by the languages spoken in different countries ; from the intellectual nature of human power, language, as the organ by which knowledge is communicated, cannot fail to assert prominent importance in economical experience.

10. If the necessity to associate for the purpose of augmenting

his power be deemed a limitation of man's freedom, his right to individuality in action is recognized in a second grand economical principle, *division of labour*. Both of these principles were known to antiquity*, and their importance has been of late years sufficiently recognized by modern authors. The attempts practically to act upon each, without sacrificing the one principle to the other, have been less successful, and the failure of these attempts has been the cause of much of the suffering that oppresses civilized communities. Where human power is recognized as being of intellectual nature, it will easily be conceived that association must be the result of agreement in views, and the consequent conviction of the utility of cooperative action. The greater the freedom of exertion that is secured to individuals thus associated, the more durable an association is likely to prove. All forms that constitute arbitrary distinctions are disturbing elements, and militate against the object of association, by controlling the free agency of the members. Instances of the possibility of reconciling these principles in the political world, are the establishment and recognition of fixed principles of international law by the states of Europe and of America. The German and Swiss Confederations, and the constitution of the United States, are national exemplifications on a smaller scale. But every village, and every commercial or charitable association, every factory, is in itself an illustration of this principle. Liberty of action must never militate against the chief purpose of the association, and can therefore not degenerate into negligence or anarchy without defeating the end of the union. A great safeguard against such degeneration lies in the division of labour, which, by allowing the members each to attain the highest possible skill in the management of his peculiar tool, adds to the profits of the association, and encourages the foundation of others. From this view of the necessity of leaving freedom of exertion to the members of an association, we can without difficulty conclude, that an association by which all mankind, as members, are bound to a common pursuit of an object beneficial to all, can alone be founded on the greatest conceivable freedom of action for each individual. Such an association, founded on the most liberal basis, religion has all along held up to man,—that is to say, that true religion which enjoins as a moral duty the co-operation of every individual in this fraternal spirit.

* Plato, *Resp.* ed. Bekker, c. 370.

11. Notwithstanding the high range of human power, there is an inseparable connection between the bodily and intellectual wants and enjoyments of man. The important economical result to be deduced from this is, the classification of our wants *. The lower wants man experiences in common with brutes. The cravings of hunger and thirst, the effects of heat and cold, of drought and damp, he feels with more acuteness than the rest of the animal world †. His sufferings are doubtless sharpened by the consciousness that he has no right to be subject to such inflictions. Experience however shows that privations of various kinds affect men differently in degree, according to the circumstances in which they are placed. For some men the privation of certain enjoyments is intolerable, whose loss is not even felt by others. Some again sacrifice all that others hold dear for the gratification of longings and aspirations that are incomprehensible to their neighbours. Upon this complex foundation of low wants and high aspirations the political economist has to build the theory of production and consumption.

An examination of the nature and intensity of man's wants shows that this connexion between them gives to political economy its scientific basis. The first proposition of the theory of consumption is, that *the satisfaction of every lower want in the scale creates a desire of a higher character*. If the higher desire existed previous to the satisfaction of the primary want, it becomes more intense when the latter is removed. The removal of a primary want commonly awakens the sense of more than one secondary privation: thus a full supply of ordinary food not only excites to delicacy in eating, but awakens attention to clothing. The highest grade in the scale of wants, that of pleasure derived from the beauties of nature or of art, is usually confined to men who are exempted from all the lower privations ‡. Thus the demand for, and the consumption of, objects of refined enjoyment has its lever in the facility with which the primary wants are satisfied. This therefore is the key to the true theory of value. Without relative values in the objects to the acquirement of which we direct our power, there would

* Plato, *Resp.* ed. Bekker, c. 559.

† Liebig declares the composition of the human body, as far as flesh and blood are concerned, to be organically identical with the bodies of the quadrupeds.—*Chemical Letters*, 19.

‡ This differs from Storch's distinction between "*besoins naturels et factices*."—*Cours*, i. 2. Both are founded in nature.

be no foundation for political economy as a science*. It is the constancy of a relative value in objects of desire, and the fixed order of succession in which this value arises, that makes the satisfaction of our wants a matter of scientific calculation, according to which we have to economize or to rule our power.

12. The acuteness with which the primary wants are felt by all classes offers the first and the largest market to the producer. The industrial occupations of every country include a far greater number of individuals devoted to the production of the rudest articles of food, clothing and dwelling†, than are occupied in producing articles of luxury or in intellectual pursuits. As the proportions existing between the persons employed in these respective occupations can only be changed with advantage by setting some free from the lower to be employed in the higher spheres of production, all economy in these proportions depends upon rendering the labour of those employed in the lower tasks more effective. This is the aim of all mechanical and chemical inventions. But in order to effect this aim, the mechanical process substituted for human labour must multiply the commodity used to satisfy the primary want, that, by cheapening this object, the higher wants to which the labour liberated is to be directed may find a market or fund of remuneration.

In this manner, the advance to the exercise of human power in its true sphere, that of voluntary exertion, is made dependent upon the satisfaction of the lower wants of man. The removal of every impediment that clogs our path to this elevated position is an object of natural solicitude, and forms the limit within which economical speculation in the present stage of civilization is confined.

Many nations, at different epochs of their history, have made great progress in the arts which tend to satisfy the primary

* The author who has approached the nearest to the economical law of value is J. B. Say, i. chap. 2. He had seized the phenomena which are the result of this law, but did not trace them to their cause, as is proved by the following passage:—"La valeur d'une chose est une quantité positive, mais elle ne l'est que pour un instant donné. Sa nature est d'être perpétuellement variable, de changer d'un lieu à l'autre, d'un temps à l'autre. Rien ne peut la fixer invariablement, parce qu'elle est fondée sur des besoins et des moyens de production qui varient à chaque minute. Cette variabilité complique les phénomènes de l'économie politique; elle les rend souvent fort difficiles à observer et à résoudre. Je ne saurais y porter remède; il n'est pas en notre pouvoir de changer la nature des choses." The reader must see that, after stating the phenomena, the detection of the law appears to present to the writer unconquerable difficulties.

† Mr. Senior adopts this succession.—*Outline*, 133. Plato puts *dwelling*, οἶκος, before dress or clothing, ἱστῆρος.—*Pol. ed. Bekker*.

wants. We may instance the Romans, of whose technical skill the Museo Borbonico at Naples furnishes such striking proof. The Phœnicians, Arabs, Venetians, and other Italian States in the middle ages, the Belgians at the same period, and the leading European states at the present day, have all in their turn attained to admirable skill in the mechanical arts, that varied according to the freedom allowed to intellectual exertion and the security afforded to the rights of citizens in each. But to the full enjoyment of human power, economized as it ought to be, none of these states attained, from the want of a clear insight into the economical connection subsisting between the two phases of national development. It has nowhere been clearly recognized, and consequently nowhere adopted as a practical rule, that the end of labour being enjoyment,—or, in other words, the end of obligatory labour being the attainment of free and voluntary labour,—*the more productive forced labour is made, the nearer a nation approaches the consummation of its wishes.*

The economist here borders on the sphere of the moralist, as in other parts of his theory he encroaches on the political field; because a sound system of political economy is unattainable without sound political and moral principles. The religion professed by a country, and the constitution by which it is governed, are primary conditions in estimating the progress it will make in economical development. The best religious tenets and the soundest political principles are requisite, as we learn from history, to admit of any considerable economical progress. Sound moral and political doctrines both favour, and are strengthened, by the development of the industry of a country, in strict proportion to that classification of the wants of the citizens that has been described. Hence we see that the range of human desires which passes the limit of physical wants, and includes moral advantages as well as objects of sense, does not lie beyond the sphere of the political economist.

13. The first step in the progress to wealth is the recognition of property; and the political economist can take no notice of what is not appropriated. Without the recognition of a moral principle—security of property—no accumulation of riches is practicable*. In their anxiety to obtain this grand foundation

* "Ce secours mutuel, ce travail commun trouvent leur récompense, surtout on la justice préside aux rapports sociaux dans une rétribution proportionnel."
—Rossi, l. 3.

of industrial progress, nations have submitted to almost every conceivable form of religious guidance and judicial government. Property has however its natural phases, that are developed with the growth of value*, and hence modes of society, that were well enough suited to the protection of one kind of property, have been found intolerable as soon as another species of property rose in value. The Christian command which enjoins equal respect of persons and of possessions for all men, includes all the phases of the growth of value, and is the most comprehensive economical law. But since laws only become effective in proportion as the consciousness awakens of the application of which they admit to cases in detail, men have constantly refused to acknowledge the application of the Christian command to growing modifications of property and of society in which they had no experience. Hence the conflicts which have at various times arisen respecting the due protection which property can claim. As long as the supply of food was a matter of difficulty, we have seen that the other wants of man offered no sure field of industry, and the claims of property which arose from the attempts to satisfy the higher wants were dreaded as dangerous or disregarded as unimportant. In the dark ages Europe presented the picture of whole nations enslaved to the production of their own food and that of their rulers and oppressors. Relief came from the exertions of a few enterprising communities who were obliged to seek protection from the aggressions of the Knights in the swamps of Venice and of Flanders, and in the rocky fastnesses of Amalfi and Genoa. The success of these traders awakened calculation and imitation. With the sea code of Amalfi commercial activity spread, and finally agricultural prosperity increased. The rise of manufactures took place under the ægis of municipal independence. With the fall of the great cities, manufactures were lost for countries that had long enjoyed them; but they were taken up in other lands, where the government recognized the right of the peaceable citizen to enjoy industrial liberty.

The attribute property is as little limited to land or to water, as it is to steam or to galvanic currents. No man can claim more than the use of what he has appropriated, and he can be protected in the use of the share that has fallen to him, be-

* Storch, i. 3.

cause he cannot employ it advantageously to himself without conferring benefit on all around him. But this is only true where the greatest freedom of thought and of action is allowed to all men. No man must have the privilege of repressing the growth of power amongst his fellow-men. No increase of that power can be otherwise than advantageous to him if he uses it properly. The right of thought and of action is however as sacred for the poorest citizen as for the greatest proprietor of accumulated wealth. When the labourer's rights are not respected, accumulated property is not secure.

While industry and interchange are unrestricted, there can be no fear of a *glut* in any stage of production. If the lower wants are not satisfied, their pressure offers the most remunerating field of exertion. The variety of remunerating occupations that present themselves where enterprise is unfettered, as the primary wants are successively satisfied, divide the exertions of producers and adapters, and prevent an accumulation of unnecessary power in any one branch of industry*.

When, on the other hand, this play of industry, that follows and suits itself to the natural and gradual growth of human wants, is impeded, either by legislative restrictions or by the fear of insecurity, the exertions of the industrious are prevented from embracing the greatest possible number of branches of industry, and a glut can easily occur in each or in all of the various stages. Again, if the supply of means for the satisfaction of the primary wants is suddenly checked, the producers of objects, whose value depends upon that supply, find their market taken from them, and a momentary glut may take place in those departments of industry. A glut arising from this last-named cause cannot however be of long duration, because the pressure of the primary wants draws the producers and adapters from higher branches to the supplying of the primary wants, by the improved remuneration which these offer when they grow urgent. Such a retrograde movement in the industry of a country infers, however,

* Mr. Senior's illustration of a glut taken from the book trade, besides wanting precision, inasmuch as the quality of the book is not specified, wants the connecting link by means of which the value of books must be shown to depend on the satisfaction of nearly every necessary want of man.—See *Outline, &c.* The Bible is a book that experience has shown to be most generally suited to the intellectual wants of all classes. Since the Bible Societies have suited its price to the power of purchasing that all ranks of society command, there has been no glut of Bibles.

a diminution of the national wealth, as well as of that of individuals.

The accordance of the interests of consumers and producers is proved by means of this classification of the wants, of the spheres of industry and of the property of individuals. Since the satisfaction of any lower want only awakens the desire to satisfy some want that was before neglected, and thus opens new fields of industry that divide the exertions of producers and adapters, it follows that *the greatest possible supply of any object of desire* is so far from being an evil, that it is *the only means of widening the field of industry and increasing the demand for labour*.

14. A limitation of the scope of the science of political economy to the study of the means of producing some particular kinds of riches, has been induced by neglect of the important fact, that all productions stand in a fixed economical relation to each other. The economical value of a thing is no more inherent in the object itself, than is the attribute of property which is the foundation of all wealth. Gold and silver are not wealth to the man who has no bread, nor does any man sacrifice the means of stilling hunger or of clothing himself, for pictures, Italian operas, or dancing. And yet no one will deny that the fine arts are elements of wealth, and that those who have it in their power do well to indulge their love for them*. The works of the artist, however, like those of the manufacturer and of the agriculturist, receive their value from the relative demand for and supply of each, which arise in a fixed order, as I have pointed out. The chain that may develop itself of our wants and power of supplying them is yet unmeasured; because no nation has as yet reached the limit of the economy of power. Few have advanced so far as to banish suffering from the majority of the people.

We have therefore no scientific ground for stopping short at any stage of production, or of the enjoyment which it admits of. We have no right to limit our ideas of wealth to the conceptions of our own times, any more than any preceding age would have been right in so doing. The science of political economy has to deal with the relative value which one kind of production creates for all others, and in this calculation the solution of the

* "La valeur, encore une fois, est l'expression du rapport qui existe entre les besoins de l'homme et les choses."—*Rossi, Cours d'Economie Politique*, leçon iv.

most of the social problems that have been found difficult is contained. The value that one species of production receives from its relations to the rest, is based upon the gradations of the wants of man, and on these gradations, as I have said, the *science* of political economy is founded.

The necessities and even the desires of man that form the moving principle and ultimately the measure of value are subject to great and almost incalculable fluctuations. The change from a state of security to insecurity, from peace to war and the converse, the influence of education, under which the slavery to fashion must be comprised, all tend to fix the direction which the development of our wants takes when they pass the first stages of food and clothing. When aggression is threatened by an enemy, the means of defence obtain a preponderating value. When peace is established, the civil authorities, and all that aids the judicial power in maintaining order, take precedence of military preparations. Fashion brings objects into favour that sound sense would reject, or the influence of a popular orator causes whole nations to abandon habits that appeared to have grown inveterate. In all these changes it is evidently not any intrinsic qualities in the objects sought or refused, but the utility which the consumer expects to derive from them that gives to each its value. In a besieged town, diamonds are willingly exchanged for bread, which at other times would be sought with the sacrifice of enormous quantities of corn*.

15. This origin of value, according to which it does not depend so much upon the nature of the object to which it attaches, or upon any difficulty in obtaining it, as upon the supply of and demand for other objects, or the general economical condition of a community, does not admit of any distinction being established between *value in use* and *value in exchange*. When freedom of exertion and security of property exist in the full sense of the terms, value in use and value in exchange coincide. Value being in all cases a subjective quality, must differ between individuals as between nations†. It is in all countries fixed by the

* Mr. Senior instances the change in value of hemp, that before the revolutionary war sold for 50*l.* per ton, during the war rose to 130*l.*, and fell after the peace to its old price.—*Outline*.

† "La valeur en échange existe parcequ'il y a valeur en usage; elle disparaît dès le moment où cesse toute valeur en usage."—*Rossi*, leçon iv.

See the limited and conflicting definitions of value enumerated by Mr. Senior in the note to 'Archbishop Whateley's Logic,' last edition.

economy of power that each has attained. Where this economy is far advanced, more is consumed of every article than in such as have not economized their power. As the production is greater in well-ruled countries than in others, there is more in such to exchange for the different objects of desire, and the value in exchange of each object is therefore greater.

The endeavours of political economists have therefore been uselessly directed to the establishment of a general standard of value by which to measure the fluctuations in the exchangeable value of objects at various times and in different places. The precious metals have as yet been found the most convenient standard for practical use, although, like every other product of industry, they are subject to the influences that give value to all objects. Corn was long supposed to be produced with equal cost in long periods of time, and, as remaining unvaried in its average worth, to offer a standard of value for long calculations. The experience of late years has not confirmed this supposition, which has at all times been contradicted by the discrepancies in the corn prices in the various countries of Europe. Labour has been suggested as a standard of value, but it was found too difficult to define. The various kinds of labour differ too much from each other to afford a point of comparison, independently of the tendency of economy of power to dispense with mere manual labour, unaccompanied by skill or trust, in every operation. The remuneration of labour is, moreover, like the price of corn and the precious metals, subject to vary with the supply and demand for the different products of industry in every country. Where power is economized, the production is great in proportion to the number of producers, and wages are higher than where means are wastefully or negligently applied. It is therefore evident that a different measure of value from those hitherto adopted must be sought. The only safe mode of estimating value must point out rather the nature of the wants felt by the body of consumers and the means available for supplying them, than any quality inherent either in the object valued or in the standard applied as a test. M. Rossi has given the key to this essential improvement in the remark that value is an essentially subjective quality. The value of an object is therefore in the estimation of the person and is not inherent in the object itself.

1. Value in exchange and value in use in fact coincide economically, and are both expressed by the price of an object, or by

the quantity of any given product for which it will exchange. Price nowhere measures any intrinsic value in an object, but only the value of that object for the class of consumers with whom it is in demand. An article that some individuals are willing to pay dear for, is often quite unsaleable amidst a different class of consumers*. Articles of indispensable necessity, like articles of luxury, are unsaleable when the supply exceeds the quantity required for consumption. The price however correctly indicates the relative value of each when a demand occurs, that is to say, the price of the total quantity consumed. When the price of necessities, as usually quoted in small weights and measures, declines, it is common to say that they have fallen in value: such a mode of expression is erroneous. Even measured in money they have usually risen in value on such occasions, and the sum paid for the quantity consumed is larger than the sum paid for what is consumed at a higher price. The political economist must frame his calculation for the consumption of the whole market; he cannot follow isolated speculations in trade, in which small quantities of any commodity may undoubtedly exchange for more of any other commodity when the price is high than when it is low. But as a rise in price, quoted in fractional quantities, may spring from two different causes, it is necessary to distinguish between the effects of both.

A rise in price resulting from a scarcity of supply never increases the sum spent on the diminished consumption of the commodity thus affected so as to equal the expenditure on the same object when the price is low, if trade be unrestricted. One reason of this is, that a rise in price brings the object affected to a level with other objects of equal utility, the cost of production of which prevents their being sold lower; these enter into competition at the advanced price, and check the rise: thus, when corn grows dear, sugar and other substitutes are resorted to, that are less sought when grain is cheap.

If prices rise in consequence of the general increased production and distribution of labour occasioned by an economy of power, then the rule is only true of the prices that follow the change thus produced. The consumption under the changed circumstances will still be greater when prices are low, and the total quantity consumed will exchange for more than the quantity consumed when prices are raised by a deficient supply. Where

* Rossi, *Cours*, leçon ix.

liberty of exertion is respected, prices cannot fall for a continuance so low as to destroy this rule, because the new wants awakened by the glut of one commodity would draw off the producers, and the price would rise to its legitimate level.

17. Where the market is not free, the price of an article, or what it will exchange for in any arbitrarily fixed commodity, affords no criterion by which to judge of the value of that article. In addition to the effects of restrictions of the right of purchase and sale, price is subject to modifications arising from the unequal diffusion of knowledge and the irregular progress made by different nations in the economy of power.

The subject of price has been nearly exhausted by Professor Hermann*. According to this author, the following are the influences to which price is subject:—

On the side of the buyer.

1st, The value in use of the object desired.

2ndly, The power of paying on the side of the purchaser.

3rdly, The cost of procuring the same object from any other market.

On the side of the seller.

1st, The cost of production.

2ndly, The power of selling at any other market.

3rdly, The value in use of the goods obtained in exchange.

Any one of these conditions on either side can, in turn, become the leading one, and can fix the price. If we analyse the relation in which these influencing causes stand to each other, we find two on each side that coincide and that are of an extrinsic character. These are the value in use of the two objects exchanged, and the influence of competition, or the power of buying and selling in any other market. With regard to the remaining influences it may be remarked, that the cost of production acts in a contrary direction upon the price to the ability of the purchaser to pay. Between the limits fixed by these two elements of price, the economical problem is contained, as there is a constant tendency on the part of buyers to lower prices to the limit of the cost of production, and on that of sellers to exact the most that the consumer can afford to pay†. A due economy of power tends in a double manner to reconcile these conflicting views; for, as improved processes of production on the one hand cheapen the

* Hermann, *Staatswirtschaftliche Untersuchungen*.

† See Storch, i., *Introd.* p. 90.

articles for the producer, the new spheres of industry that open with every want that is progressively better satisfied supply the consumer with increased funds for purchasing. Hence *the value of an object for a political economist is expressed by the product of its fractional price multiplied with the extent of the demand for it*. In the richest country the sum of these products is greatest.

Arbitrary interference for the purpose of keeping up prices necessarily diminishes the consumer's fund, and eventually destroys the producer by inducing him to neglect his proper study, that of reducing the cost of production. The producer is excited to this study by the facility the consumer enjoys of seeking a distant market. To curtail this power, which forms a right (§ 13.) that is as inviolable as the right of property, is to throw the whole economical edifice into confusion without a prospect of benefit to any class.

18. Individuals are induced to embark in new branches of industry by the greater rate of profit that these offer in comparison with old ones. The fund which provides the new profits is no other than what is saved to the consumer by the cheapening of old processes. In order that any new process may become of national importance, it must in its turn be improved; that is to say, must be made to produce gradually cheaper. By this means the producer in the new process not only profits by the original fund with which he started, but is aided by the economy that is daily effected in all the branches upon the good management of which his branch of production is dependent. From this rule it follows that an economy effected in the production of food improves the condition of every branch of both production and adaptation, as all are dependent upon supplies of food. A better economy introduced into any higher branch of industry re-acts upon the lower grades, by increasing the sum of profits and of capital at the disposal of the industrious generally. The common effect of improvements in the higher branches of industry is to raise the scale of remuneration in the primary grades of production, by abstracting hands from them.

Since this rule is tantamount to teaching the producer or adapter to look for greater profits in a reduced price, an intimate acquaintance with the market or field of consumption is necessary to give it weight. This rule is best illustrated by a calculation founded, on the great disproportion subsisting

between the number of consumers in the lower and in the higher regions of society.

19. Markets must be regarded by the producer as pyramids, the base of which is composed of the poorer classes whose material wants are as yet but moderately developed, and who have but few higher aspirations. In lands that have rich soils and fine climates, the number of citizens in a state to enjoy intellectual development is greater than in less-favoured countries, where food is more difficult to obtain and the necessity for abundant clothing is more urgent. Such countries therefore, if education taught the inhabitants the true use of these advantages, would soon obtain an ascendancy in political power over poorer lands, if the latter were to curtail the right of trade which keeps all upon an equality. The freedom of traffic being an inalienable right of man, it must be desirable for the producer to feel that the domestic market, which he cannot, without violating the dictates of religion and the tenets of justice, close against foreign competition, offers, with every successive improvement of his processes, a prospect of greater remuneration than before. In other words, it must be cheering to see that all producers are encouraged to seek to produce more and more cheaply by the prospect of the greater share of profits which low prices hold out, than can be realized with high prices.

We possess but from few states statistical data respecting the population of sufficient authenticity to describe the proportions of the various classes of the population; an approximate degree of accuracy will however serve to illustrate the principle here laid down; I have attempted a classification of the population of England from data furnished by the poor-law commission, in the report on the sanitary condition of the country.

The proportions subsisting between the classes in those districts in which the average age of mortality was noted, the agricultural and manufacturing districts being taken together, were the following:—

Nobility and gentry	1,181,000
Tradesmen, farmers, &c.	4,221,000
Labourers, paupers, &c.	9,567,000
Total population of England by enumeration	14,995,138

From a scale of this kind the effect of a rise or fall in price can be calculated. The commonest articles of necessity have

in England a market to the extent of the whole population, or of 14,969,600 individuals. Bread must be produced in sufficient quantity to satisfy the demand of this number; meat, cheese, eggs, butter and beer come into demand amongst the adults in proportion as corn or potatoes are abundant; sugar, tea and coffee, although more easily dispensed with, are extensively consumed by the labouring classes when wages are good.

The consumption of wine, silk, silver, table furniture, superfine cloth, and of many expensive articles of household use, may be presumed to have its lowest limit in the second class: this class united with that above it number 5,402,000 souls, and although proportionately more numerous in England than in any other country, is here not so much exaggerated in number as the highest class; yet, were a tradesman to calculate the difference which it would make to him if he could by a lower price secure the consumption of the last class instead of confining his sale to the second, he would find that it was in the proportion of 5 to 15. The difference between the extent of the consumption of the highest and the lowest class is as 1 to 15.

From such a survey of his market a tradesman may calculate, that if he sacrificed two-thirds of his rate of profit in order to secure the custom of the largest body of consumers, he would increase the amount of his gains fivefold in comparison with what the custom of the highest class alone would yield him. He would double his profits if he reduced the rate by two-thirds, which in the second class would yield him any given sum.

This calculation is often adopted in trade in isolated instances, although it has nowhere been consistently followed up as a general rule. Examples are familiar in the book trade, which have been eminently successful: the most remarkable is, perhaps, afforded by the sale of the Bible. Hence too an author's works become most accessible to the public, and yield the greatest profit to publishers, when the copyright expires, as the numerous editions of Shakspeare, Milton, Hume, Gibbon, and of the works of other popular writers prove.

An analogous style of reasoning clearly shows the inutility both of copyright privileges and of patents for inventions. Since the greatest profit is the result of the most extended sale, combined with the cheapest process of production, whoever avails himself of any excuse to raise the price of a commodity limits his market in a more rapid proportion than his rate of profit increases.

20. The chief cause of the obscurity which prevails in the explanations that have been given of the origin and growth of profits, arises from the want of a due distinction between the manner in which producers and adapters are affected by the rate of profit. A high *rate* of profit is an almost infallible index that the *amount* of profit which it admits of collecting is small. Since all gain is but the result of economy, either on the part of the producer or of the consumer, it follows that where most is saved the fund for expenditure will be greatest.

If however producers' gains are to increase in proportion as they lower their rate of profit, their numbers must not augment in proportion to the extent which their business, at the low prices, attains. The natural provision against an unnecessary accumulation of power in any branch of industry, lies, we have seen (§ 12), in the new fields that open as soon as prices and profits fall in the old ones. Where exertion is unrestricted and property secure, the play of industry will never fail to relieve each branch in its turn, and will thus admit of an extension of trade in a greater proportion than the rate of profit is reduced. The first effect of low prices, where industry is free, is to throw production into the hands of large establishments: hence the first operation of a cheapening of corn, by the abolition of the corn-laws in England, must be to increase, if not the size of corn-growing estates, at least the scale on which they are cultivated*. Wherever a great subdivision of landed property occurs, without a corresponding refinement of cultivation, we may conclude either that prices are kept unnaturally high by artificial means, or that industry is restricted, or finally that the property, to the production of which the superfluous hands would in a natural course of things be drafted off from the land, is insecure. The first of these causes operates in Ireland, the last in most of the continental states. Were it not for this power of extending industrial undertakings when prices fall, a community would derive no advantage from machinery and the simplification of processes; the double result of such improved processes tends rapidly to enrich a state. By cheapening the cost to the consumer, a fund is spared for the encouragement of new producers: hence the advantage for the producers themselves of competition, and of a reduction in the rate of profit as well as in the

* This would be the case only if corn continued to form the principal object of cultivation.

cost of production. The limit below which profits cannot fall is fixed by the profits that arise in new branches of industry when the rate falls in others; thus, the limit below which the profits on food cannot fall is fixed by the growth of profits on clothing and building, and every other art which becomes profitable in proportion as food grows cheap.

Many people, who have an undefined notion of the power a nation can apply to the increase of production in any single branch of industry, seem to forget that the number of producers can nowhere exceed the number of consumers*.

21. The growth of the fund which is to remunerate new industrial enterprises out of the economy effected in older branches of industry may be exemplified by an equation, which, at the same time, exhibits an analysis of the economical problem. Let A represent the natural advantages which knowledge has placed at the command of any community, and let the letters a , b , c , d express the cost of tillage, of adaptation, of carriage, and of distribution (including the profits on each to the undertakers), which are requisite to place these advantages commodiously at the disposal of the members of the community. B will then represent the amount of wealth in its adapted shape of which the community can dispose. With every successive economy of power in any branch of industry this fund increases as follows:—

$$A - (a + b + c + d) = B,$$

$$A - \left(\frac{a}{2} + b + c + d\right) = B + C,$$

$$A - \left(\frac{a}{2} + \frac{b}{2} + c + d\right) = B + C + D,$$

$$A - \left(\frac{a}{2} + \frac{b}{2} + \frac{c}{2} + \frac{d}{2}\right) = B + C + D + E + F.$$

The increase in the one term corresponds with the saving effected in the other term. Any increase of A, by means of extended knowledge, augments the general wealth still more rapidly; thus,

$$Ap - \left(\frac{a + b + c + d}{2}\right) = (B + C + D + E + F)p + \left(\frac{a + b + c + d}{2}\right)(p - 1).$$

* An ordinary water-mill near Paris grinds 36 hectolitres of corn daily. It would require 168 men to turn this quantity into flour by hand labour. Their wages would now amount to 300 francs, whereas the whole cost of the water-mill does not exceed 10 francs per diem. M. Say, in reply to the question, "What are the men thus freed from grinding to do?" answers that they must produce other objects. To the question, "Who is to purchase these other objects?" he replies, "Those who hold corn ground at a saving of 290 francs daily."

It will easily be understood that economy effected in any part of the equation usually has a more complex operation than is here represented. Improved means of carriage frequently cheapen food, fuel, and other necessities, and thus lower the cost of the other expenses. Inasfar as b may be a function of a , any change in a will necessarily affect the value of b , without any special economy taking place in b .

This equation shows us, moreover, that there are but two modes of economizing our wealth; one consists in discovering new materials in the fund that nature presents us with, the other is by improved combinations effected with what we have discovered.

The result of this statement of the economical problem is, that the supply afforded by Providence in nature, for the use of man, greatly exceeds what he has at any time enjoyed, the drawbacks to his enjoyment being occasioned by his ignorance and consequent weakness. The diminution of the force, or the total removal of all these impediments, if it were practicable, is the only mode of placing this fund at the unrestricted disposal of mankind.

22. We have here subtracted the cost of cultivation, of adaptation, and of distribution from the gross fund presented to us by nature, whence it appears that the arts which aid us in the performance of these different operations detract from the original wealth of man instead of adding to it. On this account a distinction has been sought between different branches of industry, and some have been called productive and others unproductive, according as writers have more closely observed the utility that springs directly from one or the other. All these intermediate arts represent equally the labour which man must exert in appropriating the gifts of nature, and this is the real price that he has to pay for them: to diminish this price he has reason given to him, and the legitimate exercise of his reason, until he shall have conquered these difficulties, is directed to their diminution. The gross fund, instead of declining in proportion as the necessity for labour is lessened, augments by the means of the increased intellectual power that is then directed to analysing the realms of nature and discovering new means of subsistence and enjoyment.

Inasfar therefore as we are ignorant of better modes of satisfying our wants than those which the state of the industrial arts

in every country affords to its inhabitants, the persons exercising those arts are all producers who contribute to preserve the gifts of nature, and to present them when and where the consumers most require them. In countries where the industrial arts are few and badly cultivated, the inhabitants have few means of subsistence, and few instruments of power; they consequently extract less from the general fund than those countries who command more means: this is one reason why economy of power (§ 1.) cannot be said to consist in mere saving or abstinence. The expenditure in these intermediate offices is in proportion to the state of knowledge in a community, and can only increase (where power is economized) at a rate that affords a proportionately greater increase of the national wealth. There is therefore nothing to regret in the loss of the means that were used in imperfect processes, as soon as improved processes render them useless. Restrictions imposed on trade or on industry, for the purpose of perpetuating imperfect processes and keeping inefficient means in use, would therefore be absurd, were they not unjust and criminal. The productiveness of every useful art is measured by its tendency to remove the difficulties felt in that particular art. When the cyclus of improvement in the arts is completed, we may expect that manual labour will be almost dispensed with in all offices of drudgery. The most productive labourer is he who, by extending the bounds of knowledge, multiplies the general fund at our disposal.

23. The economy of power which liberates men from one species of toil and opens a field of activity in some other direction, is usually effected by the substitution of a machine or instrument of some kind for the manual labour that is rendered superfluous. Men must therefore employ a portion of what they appropriate from the fund of nature and adapt to their wants, in the performances of offices that were previously performed by hand. The substitution of the plough for a spade requires iron to be gained and worked up in sufficient quantity to allow of the substitution of the new instrument for the old one, and that a sufficient quantity of food be raised to feed horses or oxen besides men. For the substitution of machine for animal power upon a railroad, not only was an increased quantity of metal required, but the number of scientific labourers whose united intellectual labour devised the improved processes of founding, which made

iron abundant, was indispensable. Hence the importance of saving or abstinence.

Wealth bestowed by nature or accumulated by abstinence, if it be employed in reproduction, is termed capital. The name, which is taken from the capitation tax of earlier times that was levied on personal property, indicates the origin of the common limitation of the term to that description of property. Hence indistinct notions prevail respecting the nature of capital, which some suppose to consist wholly in accumulations of objects of sense. Money, buildings, machinery, cattle, water, air, land, are all capital, in as far as they are used to produce objects of necessity or enjoyment. Knowledge is, however, a far more valuable acquisition than all. To these visible and tangible objects M. Hermann* adds all the advantages resulting from association. These are of two kinds; such as appertain to individuals from their isolated exertions, as for instance, the custom of an established shop, which often sells for more than the shop itself; or family connexions. The effort to establish factitious gradations in society has ever been based upon the economical value of the results of association.

The second species of capital gained by association differs only in degree from this. A nation, a province or a city commands many advantages beyond the sum of the capital that each subject or citizen possesses. Plato early pointed out the fact, that it was for the purpose of obtaining these advantages by uniting which man could not command when scattered that men associated to form states and cities. The institutions of religion, law and education are the most valuable portions of the national capital, where they contribute to this result. Knowledge is so valuable an element of national prosperity, because the use of capital is chiefly to substitute artificial for human labour, and the devising of good substitutes is more difficult than their employment when devised.

24. Land, water, air, and the various powers which nature places at the disposal of man, and which form part of the general capital, are not distinguished from the artificial capital which is the result of man's industry and abstinence in their subjection to the economical laws which give value to all. In order that an extensive tract of land shall obtain value, it must be brought

* Hermann's *Staatswirthschaftliche Untersuchungen*, p. 6.

into use, and this can only be effected by means of economy of power. While man is kept in that low stage of intellectual development in which food forms his only object of desire, all land that exceeds the extent requisite to produce food is comparatively valueless. With every extension of the scale of wants, artificial as well as natural, land, as capital, comes into demand, and new varieties of property arise. Where sufficient security of the rights of individuals favours the general progress, the advance in value of all kinds of capital will be simultaneous. Waterfalls and choice sites for the growth of the vine or of other delicate plants are sought when manufactures are founded, and augment the fund that a nation can spend in delicacies. There is no separation practicable between the owners of the natural portion of capital and those who possess the knowledge and the instruments requisite to turn the gifts of nature to the best account. The union of the two is what alone gives value to either, and this union can only be cordial when the right of each is secured.

It is by some considered a hardship that a rent must be paid for natural advantages which the owner did not create, and which he, perhaps, often has not purchased: this is of no consequence to the person paying rent, because what he hires is a temporary right of property, to have which respected he must recognise the right of property in the owner. No rent is paid for any natural capital until the gain that can be drawn from it covers both the rent and the usual rate of profit that can be obtained elsewhere.

But in this, as in every other description of property, the freedom of the individual seeking the use of natural capital must be inviolate. Every man has a right to choose his market, and since it may be presumed that, if unrestrained, each will choose that which is most profitable, he forwards by such a choice the general good. In this, as in every other case, the simple Christian precept is the wisest economical law.

The capital of the labourer is his labour; over this he has a right to dispose freely. In any union for industrial purposes the labourer is a partner, whose share of the profits is a matter of free contract. Where power is best economized, the labourer's share is greatest; but it is in all cases proportioned to the efficacy of the instrument which he knows how to wield. Intellectual only differs economically from manual labour in its superior efficacy.

Where the right of property is recognised in all the phases under which it presents itself, credit, a most important kind of capital, arises. Credit is, next to knowledge, the grand facilitator of association for the purpose of creating wealth. Credit has its grades like property, and in many countries is confined to a few privileged individuals. That country is the richest in which credit is enjoyed by the poorest class, that is to say, by the great bulk of the inhabitants.

25. Owing to the great number of the inhabitants of every country that forms the lowest stage of consumers, we have seen that from this class the greatest remuneration may be expected by producers. For the same reason, the mass of savings effected by that class may be expected to exceed that of the higher classes. There can however be no doubt about the greater economy of power, taken in the comprehensive sense in which I have used the term, that can be effected in this class than in any other. The right of property consisting in the free use of their labour, is therefore for the labouring classes and for a community in general, the grand lever of progress to wealth. All interference with this right, whether by parliamentary legislation or that of combinations and unions, is to be deplored as unjustifiable.

Without the aid of the labourer (whether intellectually or manually occupied), the property of the owner of land, water, cattle and other gifts of nature is valueless: hence the desire to concentrate on certain portions of land, the labour which can alone render it valuable in the first instance. Where circumstances favour the effectuating of this policy by unjust means, such as nearly every page of history shows us was the result of an erroneous estimate of human power, both the class that resorts to such, and the community at large, suffer by its adoption. Communities that adhere to the prescriptions of justice and humanity cannot fail therefore, within a short space, to acquire so much greater wealth and power than a state which admits of injustice towards any class of citizens, that this alone compels the rival state to abandon its impolitic course.

Political power, which is one test of good state economy, has, under the influence of these circumstances, found a supreme seat in almost every country of Europe and Asia successively. America might have had its turn if sound education and respect for the rights of individuals had been equally cultivated with the

industrial arts in that quarter of the globe, and if the influence of the free institutions of some of the American states had not been speedily recognised in the leading states of Europe.

26. The progress in the economy of power, in every country that does not wish to have its industrial edifice shaken and its social condition endangered, must be more rapid than the rate at which the population increases. Since a cheap supply of food is the condition of the prosperity of all other branches of industry, means must be devised by those whose wealth derives from the higher grades of production to keep the supply of food in a due proportion to the increasing consumption. Where power is duly economized, the development of the other branches of industry, such as improved means of carriage and mechanical inventions, reacts upon the production of food.

A more probable economical difficulty than threatens from a scarcity of food may arise from the rapid increase of knowledge and the corresponding demand for labour, which may cause it to grow scarce before machinery can relieve a sufficient number of hands from unprofitable processes. In this latter case the labourer would demand a great increase of wages, and in this shape the question that has been raised, as to the conflict of wages with profits, presents itself in the clearest manner.

If the reduction of the *rate* of profit necessarily reduced the *amount* of profits taken by a producer, the labourer could only obtain an increase of wages at the cost of his employer. We have seen how, by extending undertakings, profits may augment in amount while they fall in rate. The manufacturer who raises his workmen's wages fifty per cent. is no loser if he proportionately increases his sale. By paying higher wages he adds to the fund which is to purchase his wares. Had he reduced his price instead of raising wages, he would have made the fund already at the labourer's disposal go further than before. On the other hand, although a labourer when using an improved machine receives a higher salary than before, he really has reduced the price of labour by giving more efficient labour within the same space of time. Thus the labourer follows the principle that is prescribed for all producers: he reduces his *rate* of profit on his capital in order to increase its amount. There is no conflict between the interests of employers and their assistants in this respect, where industry is free. The rapidly opening spheres of industry, where power is duly economized, provide for all. The

success of the employer ensures the labourer a demand for his cooperation. The natural consequence of unimpeded improvement is ultimately to place both upon an equality.

The theory which maintains that wages can only rise when profits diminish, is true as regards the *rate* of profit only, which we have seen varies inversely in proportion to the *amount* of profits. But although this theory originated under circumstances of restricted industry, it was understood and is by some still thought to apply to profits generally. Where trade is restricted wages can only rise by a reduction in the rate of profit, which then is not compensated by increased traffic.

27. The necessity for the constant increase of the size of establishments to keep up a due proportion between wages and profits, proves that producers are equally interested in freedom of trade with consumers, whose indefeasible right it is to choose their market. From the gradual rise of wants that I have described, there must always be some, the circle of consumption for which embraces a limited class in different countries. A sufficient supply for these can often be furnished from one or two establishments. The greater part of the diamonds now used in Europe have, I believe, been cut by a few Jewish families residing in Holland. There is no advantage to be derived from prescribing a home market for these objects of limited demand. If they are produced at a dearer rate at home than they can be obtained abroad, the rise of some other demand which might be better suited to the country is prevented. Objects of necessity in the same manner constantly extend their range beyond the political boundaries that separate nations. Wine can only be obtained in Russia from the Rhine or from Bordeaux, on the condition of some country's taking hides, tallow, flax and grain from Russia. Were the Bordeaux wine-merchants to turn a portion of their grounds into pasture, and the Rhenish vineyards to be ploughed up to grow flax, the loss would be obvious, because under such circumstances the Russian could not obtain an article for which he was willing to pay more than its worth on the spot where it is produced, in produce of which he had a superfluity. Freedom of interchange is thus indispensable to a highly advanced stage of civilization. By its means both the best provision is secured for the supply of the primary wants, and it furnishes in some cases the only means of awakening and satisfying desires of the most elevated character. Freedom of

trade, therefore, supplies all the advantages that are promised by the communal and other systems professedly founded on co-operation, with others that these systems do not include. It has besides the invaluable advantage of suiting itself to every stage of wants, and of ensuring that degree of individual freedom which man regards as the highest of his prerogatives.

28. M. Hermann's distinction between fixed and circulating capital is clear and simple.

Fixed capital being only *used*, and not *consumed*, in producing an object, the interest of its value, with an allowance for wear and tear, are all that enter into the estimate of the cost of the object produced. According to their nature, tools of various kinds must be classed under these heads. If a hammer or a saw serve a carpenter in building several houses, they belong to his fixed capital. The nails that he purchases to consume in building form part of his circulating capital while in his possession. If wine be kept so long that the cask grows rotten, it becomes necessary to look upon it as part of the circulating capital of the wine-merchant. Such too are the casks that are exported with wine, the sacks that enclose wool, and all similar packages. The wages of labour are paid with circulating capital, and their whole amount enters into the cost of production.

The holder of fixed capital (especially of land and water) and the labourer, or he who looks only to the temporary hire of his manual or intellectual aid in producing, are clearly both benefited by every change that renders circulating capital—whether tools, machinery, coin, or other means of facilitating production—more effective than before.

This rule is more comprehensive than one given by M. Hermann, who admits of a certain gain to the owner of fixed from the increase of circulating capital, only when the former is of a nature that precludes its being increased. There is perhaps no point in political economy of more importance to clear up than this. The apprehension that any change in the nature of the fixed capital existing, or any extension it might admit of, would prove prejudicial to its owners, has been in all ages the greatest obstacle to improvement. M. Hermann instances water-mills, and supposes, that if they could be monopolized in a district where circulating capital increased, a higher rate of profit might be secured to the owners than prevailed in other trades. To this I object, for two reasons. Were the scarcity of mills to render

corn dear, the value of all other products would certainly fall; but this would occasion emigration, or at least prevent an accumulation of population, and lower the value of fixed capital. On the other hand, were an importation of cheap corn allowed, all other products of industry would come into such demand, that the waterfalls, instead of turning corn-mills, would undoubtedly be worth much more for other purposes. The disposition to consider man bound to *some particular use* of objects is another great obstacle to social progress. Everything is given to man for the best use he can put it to. In nearly every case it is less the power than the use which is made of it that determines the amount of prosperity we command. In every succeeding lecture the importance of this truth will be impressed upon us. Through every phase in the growth of property it will at once account for the numerous errors that have so strangely circumscribed the power and happiness of nations, and will point to the dangers which we have in future to avoid.

The tendency of circulating capital to merge into fixed capital is an infallible index of improvement. It corresponds with the substitution of houses for tents, of pastoral life for hunting and fishing, of crops raised in rotations that preserve the soil in vigour for nomadic cultivation. Above all, it corresponds with the grand element of civilization, the substitution of machinery for manual labour. This tendency must be hailed as the chief promoter of the happiness of man, for we shall see that all parties are gainers where it is encouraged. It will be acknowledged as at least a correctly logical conclusion, if value be imparted to commodities through the estimation of the consumer, that it is good policy both to increase the number of estimators and to elevate to the utmost the standard by which they judge. This personal and moral elevation is effected by setting men free from degrading toil, which is mainly effected through fixed capital.

Another distinction that has been remarked by M. Hermann is the circumstance that fixed capital is often useless for other than one purpose. Circulating capital, on the contrary, can be turned at pleasure from one branch of industry to another. This is, however, not true of land, which can be applied to almost any conceivable species of production by the aid of art. Machinery, in the present imperfect state of knowledge, is more liable to suffer by the fluctuations of trade. In estimating the value of machines, this inconvenience must be taken into account, and

perhaps it admits of a remedy. Buildings are generally more easily exempted from the operation of unfavourable conjunctures that change their destinations than machines.

It behoves every speculator with capital clearly to discern what use he is making of his investment,—that is to say, to ascertain whether he embarks it as fixed or as circulating capital,—when he builds, constructs machines, or purchases shares in any joint-stock undertaking. Mr. Babbage tells us that the rapid succession of improvements in machinery of late years has caused a calculation amongst manufacturers, according to which the value of a new process is not worth more on an average than three years' purchase. All the investments in objects of so short a tenure, whether buildings, machines, or other utensils, must be regarded as circulating capital, and their full value must be added to the cost of production estimated within that period. If the buildings and machinery can be adapted to any other purpose after the process for which they were destined has been superseded, they may be considered as fixed capital. In this case their wear and tear only is included in the cost of production. In such a case, too, the value of this investment will improve in consequence of the improvements or of the new process that has exploded the former one.

By a judicious calculation respecting the nature of the investment in which a speculator embarks his savings, both the public and the landlord are made to share his fortune. His price, where his tenure is precarious, must be high enough to cover the outlay for his investment; and to avoid overstraining the price, he can neither afford high rent nor wages, except under the condition of an extended sale, and a great efficiency of labour. The possession of this circulating capital is therefore not so desirable on its own account, as because it renders labour efficient, and at the same time augments the fund for the remuneration of all. Capital is a means, and not an end, and therefore no class either of producers or consumers can be interested in retaining imperfect processes, to the exclusion of better methods, or of the cheap produce which these bring forth.

LECTURE II.

RENT, AGRICULTURAL PROFITS, AND WAGES.

FROM the importance of food, as the source which gives value to all other productions, it is natural, Gentlemen, that agriculture should be the first art practised in every country. It is, however, quite unnatural that the production of food should be deemed the chief object of the agriculturist's care. Providence did not deliver man into the hands of food-growers without an appeal. And what more beautiful ordination could have been devised for our emancipation than that which makes every other product of the earth valuable only when food is accessible? Thus, from the first beginnings of society, when the earth produced spontaneously more than could be consumed, provision was there for the enjoyments of refined industry, even when intellectual enjoyments were lost sight of. So far from estimating the value of the earth, given to man to enjoy, by its reluctance to produce food, it is clear that from the earliest time the value of all land was exactly proportioned to the ease with which the means of sustenance were procured. Where food was cheap, every other product was a more profitable crop than food; when food rose in price, every other product lost value.

The original capital of every country, therefore, is the land, with its products, and all that attaches to it, such as water, air, and the other natural forces. These are given to man, not to be limitations to his enjoyments as an intellectual being; but to minister to him as such.

In the misconceptions that arose on this point, the misery of man originated. Either the earth is there to be used by man as his reason directs, and he is to dictate what it shall produce, or he is a slave to the quantity and quality of the land on which he lives, consequently no free agent, and, as some theorists have correctly inferred from such premises, is not morally responsible were this the case. The inhabitants of no country can, in an ignorant age, increase, excepting where nature has furnished them with a prolific soil and a genial climate. Hence, in rude

antiquity, power and wealth were monopolized by such favoured lands. Babylonia, Egypt, and the valleys of the Ganges still bear tokens of the ancient power and wealth that history or tradition records of the empires of which they were the seat. The countries adjacent to these became the seat of pastoral husbandry. But the dependence of this second step of the industrial ladder upon the primary grade is forcibly illustrated by the immigration of the pastoral Israelites into the corn-growing Egypt, after a succession of years of suffering from scarcity of corn.

Such dependence upon soil and climate is, however, only necessary when the knowledge of a population is limited. The first successful attempt to remedy the evil is recorded in the history of the Phœnicians. These, inhabiting cities perched like sea-birds' nests upon the shelving rocks of Syria—without territorial possessions surrounding them, and defended by forests from the attacks of their powerful neighbours—soon discovered that the acquisition of food was matter of calculation. They recognised the great truth, that, since no man can consume more than sufficient for his nourishment, it was possible to obtain this indispensable supply by the sacrifice of only a portion of the labour of a country. Rocky sites, in situations only favourable for commerce, were the positions chosen by the founders of Athens and Corinth. We know the dependence in which these states, at the acme of their power, stood for supplies of grain on the countries bordering on the Black Sea; yet we do not find the Greek writers complain of this dependence as a national calamity. The legislature of Athens favoured the importation of grain from all parts of the Levant and the Black Sea,—a measure which seems to have sufficed to ensure abundance. In the Peloponnesian war, the crops in the country round Athens were frequently destroyed. The Athenian statesmen seem only to have regarded their supremacy at sea and the state of the public treasury.

Nearly all the countries that I have mentioned as wielding powers derived from abundance of food, furnish the first examples of the increase of human power that results from association. The fertility of ancient India, Mesopotamia and Egypt, depended on a command of water. When the demand for produce grew urgent, it was found practicable to satisfy it by carrying the water of the rivers Ganges, Euphrates and Nile over the adjacent country. For this purpose either the inundations caused by

the periodical rains were used, or the river being dammed up at a high level, its water was led through canals, over commanding elevations, whence it ran over the lower country. Of this latter mode of irrigating, the Greek historian, Xenophon, gives us some description as it was practised between the Tigris and the Euphrates. The traveller Chardin has described it in Persia; the missionary Du Halde has given an account of the mode used in China. But whether, as in Egypt and India, the inundations were used, or, as in Mesopotamia, advantage was taken of a high level to feed irrigating canals, the economical use of water demanded the first proof of civilization in man—*association*. No selfish barrier, in the first case, must have opposed the equal flow of the beneficent flood. In the second, no egotistic neighbour can have impeded the drainage of a field artificially flooded. We require for a thoroughly economical system of either irrigation or drainage, a unity of purpose in the owners of land, which is unattainable until they are convinced that it in no way interferes with the exclusive property and dispositions of the lands of each. Thus the principle of association is strengthened by combining it with division of labour. In Persia, India and the Levant, at the present day, wherever irrigation is practised, agriculture flourishes. Abundant crops of rice, indigo, cotton, sugar, cocoa, and other tropical plants, are only attainable where water can be commanded as well as land, either in the east or in the west. But with this progress in knowledge, which thus increased the power of man, a new species of property arose: an accumulation of artificial capital was unavoidable in embankments, in flood-gates, sluices and drains. This improved state of agriculture demanded security for this additional property. Such an advance in agriculture was only practicable when government was organized in a stable manner,—when rulers acknowledged that they were there for the benefit of the ruled, and their subjects submitted to organization for the welfare of all. With the downfall of the ancient empires, whether from internal competition or foreign ascendancy, these works of necessity and art decayed. But the pride of every successful race of rulers was to renew them. Under Persian, Median, Greek, Roman, Mahomedan sway in the East, irrigation, when restored, testified to the sound foundation which the power of the ruling house had attained, and to the security of property for which the subjects acknowledged themselves indebted to it.

In modern history irrigation plays a very conspicuous part in agriculture, but under exactly similar circumstances. The first step the Saracens took when their rule was fixed in Sicily and southern Spain, was to adapt this art, which was familiar to them, to the spacious plains that lay at the foot of the mountains. The luxury of the courts of Grenada and Cordova is familiar to most of my hearers. Some have, perhaps, visited the magnificent ruins of the Alhambra and admired the splendour of the mosques, that now are used as Christian cathedrals. This magnificence owed its birth to the application of intelligence to the cheap production of food under the principle of association, combined with security of property. It was undoubtedly forwarded even amongst the Mahomedans by an economy of power, which made the classes whose fortunes exempted them from toil apply to the study of the sciences and the useful arts.

The downfall of the Moorish power was owing to a moral cause, which belongs also to political economy, but to another of its chapters.

In countries where no artificial impediments have been raised to obstruct the simple views of the people, the system of agriculture practised agrees, at the present day, with the results of the experience of ages. The food-producer raises as much as he can, and that in the cheapest manner. This allows the cultivators of all other crops the highest price for what they grow, and the food-grower, in the principle developed in my last lecture, is remunerated by a constantly extending market for his grain. The land is regarded as capital, and where it is very abundant is allowed to work with the smallest amount of expenditure, being re-invigorated by frequent fallows. When population increases, the production of grain is removed to a distance to make room for the gardens, dairies, and other crops that are more remunerating for small capitals, as demanding skill and personal attention. By these means a good organization is introduced into agriculture, and rents grow high upon land that is devoted to green and fibrous crops. Grain, upon the cheapness of which these crops depend for their value, is removed to parts where, from the want of population, land is to be had on easy terms.

Rent being a share of the profits of cultivation, which the farmer is willing to give for the use of the land, the profits on

farming may reasonably be supposed to be high where high rents are paid. At all events, this will be admitted to be a practical test of the landowner's interest in good farming, and it is easy to show that this is consulted where the natural system that I have described is followed. Money-rents prevail, as a general rule, but in few parts of Europe. Belgium, Holland, and the north of Italy are countries where, as in England, they are common.

The climate of Belgium is too moist to demand irrigation for more than its meadows; and as products connected with manufacturing processes pay better than meadowing, excepting in certain districts, there is little irrigation on a large scale demanding association. Every advantage is taken of the relative value created for all objects by the abundance of others. Thus, while wheat is imported at a moderate duty (although too high) from the Baltic and the Black Seas, a large tract of land between Ghent and Bruges and Ostend is devoted to growing butter. Cheese of superior quality is made in the highlands of Limburg, which are too distant from the coast to be able to export butter. The hills of Limburg, on which no corn whatever is grown, and where the climate is ruder than on our exposed uplands, yield rents of 100 to 150 francs per bonnier of three acres, or £1 : 4s. to £2 per acre.

In Flanders, where a dense population has laboriously cultivated a large sandy tract, and made it remarkably productive, flax is the produce that pays best. The arable crops follow in rotations that prepare the land for flax. It is true the high price obtained for his flax by the Belgian depends most upon the treatment of the plant when grown; and this process is performed by intermediate hands, who purchase the crop standing on the ground. The rent paid in Flanders, however, shows that the landowner always participates in the improved intelligence and industry of the other classes of society. Two hundred francs per bonnier (£2 : 7s. per acre) is a common rent for this land, which, considering the enormous land-tax (£1 : 10s. per acre), and the cost of cultivation (estimated at £13 : 13s. per acre), is very high. Dung and hay are in these parts imported from Holland; and it must be obvious that the profit in flax and every other market crop, such as rape, linseed, cheese, butter and meat, must depend upon the cheapness of the two imported articles—hay for cattle, and corn for the inhabitants. The

Belgian farmer is, therefore, under no obligation to the minister who *taxes either*, under the pretext of protecting him. He has as little reason to laud the commercial policy which of late years has restricted the trade of Belgium; for this prevents the natural draft of hands from agriculture to other occupations, which freedom of trade causes—in other words, the organization of industry. The owners of vineyards and olive-groves in France are equally interested in the acquisition of cheap grain and cattle. It is a perversion of reason to insist upon their ploughing or meadowing to supply themselves with food.

The agriculture of Holland is no less admirable and profitable than that of Belgium. The country is so much lower in level than Belgium, that the whole land has to submit to one grand system of draining, with which, however, irrigation is at the same time extensively combined.

The province of Holland, situated between the rivers Maas, Leck, and Y, forms one combined system of drainage, the outlets to which are in the Maas and the canal near Catwyk, which communicates with the lake of Haarlaem, and is considered the true mouth of the Rhine. This outlet, through the downs that form the bulwark of Holland towards the ocean, is carefully defended by successive flood-gates and sluices, which are supported by water on the land side against the pressure of the high tide. When the tide is at ebb these flood-gates are opened, and the pent water, the drainage of the country at the back, issues out with a violent eruption that carries off any sand or stones that the tide may have left in the channel.

All the canals in the interior are leveled with regard to these outlets, and serve both for agricultural and commercial purposes. From the lands that lie below their level, the water is raised by windmills that turn screws or work pumps, and the quantities to be discharged and the time of working are fixed by a board (the *Waterstaat*), which is one of the most important departments of the government. Under such circumstances, it would be a real misfortune if landlords and farmers were convinced that profits and rent were only to be drawn from the cultivation of Cereales. Meadow produce, hay, butter, cheese, bleaching, and the more artistic branches of cultivation, fruit and flowers, are what the Dutch farmers and landlords look to. These modes of using the land yield the more profit the cheaper grain is in price. In consequence of the good selection of crops, and the

skill with which they are cultivated, agricultural rents equivalent to £2 and £3 per acre are current. These rents do not include such land as that near Haarlaem, which is totally unfit for the growth of wheat, but brings its owners perhaps the largest profits in the world as flower-beds. To the rent the high land-tax has here to be added.

In addition to the illustration of the principle of association thus afforded by Holland, a no less curious and interesting union of interests takes place between Holland and Belgium.

The rich lowlands of Holland that are occasionally inundated by the sea are known under the name of the Polders. Being saturated with salt, they yield not only fine grain-crops, but can be meadowed for many successive years without the use of manure. Holland is, however, in possession of abundance of manure, from the great stocks of cattle held everywhere, and the number and extent of the towns. The refuse of the towns has therefore become a matter of trade, and is regularly sold at high prices to Belgium. To this importation of manure from Holland, and to the care bestowed on utilizing the sweepings of their own towns, the Belgians owe the power of growing flax upon the light sandy soil of Flanders. The greater part of both East and West Flanders was originally not better land than the worst part of Norfolk, and much of it is sandy down land reclaimed and fertilized by cultivation and manure. At about twenty miles from Antwerp, up the Schelde, the reservoirs may be seen for the manure that is brought from Holland. The trade is managed by a company of capitalists, and the Dutch boats are so constructed that they are loaded by tilting from the carts in the towns, and discharge their cargoes without hand-labour. It is worth the while of every agricultural traveller to visit these depositories, where the suggestions that have only recently been made by the Health of Towns' Commission for the benefit of English farmers have long been carried out practically by the Flemings.

The plan recommended by the Health of Towns' Commission will undoubtedly lead to a most desirable association in these islands. It will, I trust, heal the division now raging between town and country. The suggestion of the Commission is, that the systematic drainage of our towns should be carried in a fluid state into the fields, and then placed at the disposal of the farmers by irrigation. Under such a plan, it would be unquestion-

ably possible to double or treble the actual production of Great Britain. I am, therefore, in recommending the plan, doubly bound to show that increased production is no evil where intelligence and free exertion combine to utilise it. England is not without instances of judicious association for agricultural purposes. The extensive operations carried on in Lincolnshire and the Isle of Ely for the drainage of the fens, and known by the name of the Bedford Level, is one instance. But the principle has been far less adopted than is practicable, and we are more indebted now to that organization which secures growing property, and induces people to utilise it in trade and manufactures, than to the skill with which we employ our agricultural resources. The association between town and country which the Health of Towns' Commission has suggested will do the most where it is adopted to place us as far before the rest of the world in agriculture, as we undoubtedly are in the other branches of industry.

The agriculture of the north of Italy deserves even a more intimate study than that of Holland and Belgium. Like the farmer in these two industrious countries, the Italian prefers the culture of high-priced articles to ordinary crops, but he refines on the best northern husbandry.

Lombardy, situated at the foot of the Alps, and overlooked by the glaciers of that mountain chain, has, perhaps, the greatest fall of rain of any country in Europe. It was probably the inconvenience occasioned from the swelling of the streams that made the Milanese early turn their attention to the construction of canals. The "Naviglio Grande" was commenced in 1178, sixteen years after Frederick Barbarossa had destroyed the city, but only two years after the Milanese citizens had again defeated that intruder, and forced him to conclude an ignominious peace. The Naviglio Grande was destined to water the fields only, and was constructed for that purpose at a high level. The success of the experiment occasioned its repetition, and before the close of the fifteenth century the little state of Milan possessed five canals of considerable size, chiefly intended to assist the agriculture of the country.

The Saracens were, as I have said, the teachers of the art of irrigation, in modern times, in Spain, Sicily, and Southern Italy. In Lombardy, the monks were the first who practised the art. As early as the year 1138, a document still existing confers on

the monastery of Chiaravalle and Vicoboldone* the privilege of carrying water for the purpose of irrigation through any lands they pleased. To induce general consent to this expropriation, which, at a very early period, was found necessary, and with the aid of which all the grand improvements in that beautiful district situated between the Po and the Adda have been effected, a feeling of security was indispensable, and the division of labour was thus ensured. No landowner can now refuse another permission to carry a water-course through his land to another which is barren from drought. An understanding is therefore easily brought about, by which those proprietors who lie nearest to the canal or Alpine springs, that are now almost preferred, take the water in the first instance and sell it, when it runs off their fields, to the next neighbour, who, in his turn, disposes of what he has to spare to a third.

A systematic arrangement of this kind of course requires a methodical laying down of the land. The fields are, consequently, laid down, in Lombardy, in a scientific manner that no other country has to show. A class of agricultural engineers is found in Lombardy almost exclusively. The water, which doubles the production of the land, of course sells for as much as the land itself. Sometimes land and the water that irrigates it form investments for two capitalists, the landowner paying the water-owner a rent for the use of the water.

In this manner the wonderfully productive meadows that yield the Parmesan and Strachino cheeses, with the delicately flavoured Italian rice, are treated. On some meadows a constant flow of water is kept up through the winter, and suffices to allow the grass to grow under the mild frost of Italy. These winter meadows are called "Prati a Marcita," a title of unknown derivation.

Meadows of this kind can be mowed as often as nine times in the year. Berra†, the chief scientific authority on the subject of these irrigated meadows, estimates that eighteen to twenty acres will furnish fodder for fifty cows. It is owing to this abundant supply of green food, that upon a surface not much exceeding the extent of Wales, between 400,000 and 500,000 head of

* Ut monasterium possit ex Vectabia trahere lectum [*a canal*] ubi monasterium voluerit, et si fuerit opus liceat facere eidem monasterio fossata super terram ipsius, Johannis [*the seller's*], ab una parte viæ et ab alia, etc., et possit firmare et habere clusam in prato ipsius Johannis.

† Dei Prati del Basso Milanese—1828.

horned cattle are found, besides a large proportion of sheep and horses*. M. Berra himself had cows in his stables that weighed eighty stone, while giving upwards of 2000 quarts of milk in the year. But the quantity of dairy produce is not more remarkable than the quality of the products which are prepared from it for exportation, and which bring the highest prices in all parts of Europe. Guicciardini, in an old description of the Netherlands, published by him at Antwerp in 1567, mentions Parmesan cheese as an article largely imported into the lower countries from Lombardy. How generally this delightful cheese is used in the whole of Italy is well known. In the kitchens of the rich it can now neither be missed at Paris nor at St. Petersburg. This article, which is thus universally prized, and which brings a higher price than the finest English cheese (which is little sought on the continent), is made from the skimmed milk, so that the farmer reaps the profit of his butter in addition to the cheese. According to M. Berra, 100 lbs. of milk give, near Milan, of butter 2·38 lbs., and of cheese 6·17 lbs. Near Lodi, the yield is something greater. The high value of Italian farming produce is owing to the remarkable division of labour. It is rare to find the actual farmer or manager of the ground at the same time the cheese-maker. The "Casaro" is justly esteemed an important personage, and, even where he forms part of a large establishment, is quite independent of the other farming servants. A great deal of the cheese is made in Lombardy by wandering "Casari," who contract for the milk of a season often from more than one dairy, and make the cheese in an out-house on their own account.

Rice is extensively cultivated in Northern Italy. Instead of the flax of Belgium and Holland, the Italian produces another material for the loom, which is even of higher value. The dry lands that are not adapted to irrigation combine the culture of the mulberry-tree with that of the vine. The production of silk is again facilitated by a division of labour that is peculiar to Italy. The owner of the eggs, or, as they are termed, "the seed," appears at a farmer's residence, and contracts for his mulberry leaves as the "Casaro" does for his milk. He receives a shed, which is emptied for him, and remains six weeks—until his worms have attained their growth and spun. He then dis-

* The land-tax estimate was 407,895 in 1837.

appears with his crop of cocoons to seek the most skilful spinners, on whose work the value of what he has obtained very much depends. On the whole, it is scarcely possible to imagine a more pleasing instance of association, combined with division of labour in agriculture, than Northern Italy presents. The financial side of the picture is also a remarkable one.

A comparison between the rents specified as paid in Northern Italy and the rents of England, or even of Scotland, will show how much more the Italian landlord receives than the English landlords, although the price of wheat is not higher than 38s. 8d. per quarter, and wine is only rated at 6d. per gallon.

Northern Italy (like Holland and Belgium) is a country where land can be let to farm. The mode adopted generally is the *metayer* system. Thus one-half of the gross produce of the richest soil under the finest climate in Europe, and the produce of which is turned to the best account by the concentration of intelligence I have attempted to describe, is the landlord's share, if he find the stock. If the tenant find stock, the landlord draws but one-half of the nett return.

As an illustration of money rents, I may quote, from a good source, the rent of sixteen estates in the province of Vicenza, containing 10,027 jochs, or 1100 acres, amounting, in 1825, to 34,309*fl.* 41*k.*, being at the rate of 34*fl.* 2*k.* per joch, or £3 per acre*.

The market for produce being very limited in Germany, Austria and Russia, the whole endeavour of the farmer is in those countries directed, *not* to produce *the most he can*, but to obtain everything *at the least possible cost*. These are the countries, therefore, where grain ought to be grown, and large farms ought to prevail there. A mistaken view of the economical position of the farmer has led to a very minute division of the soil in these lands. The consequence is, that the peasant holders of ten to twenty acres, in order to obtain even the little money required to pay their taxes, are obliged to farm on a large scale, which they accomplish by association. The fields of a village are apportioned into three lots: those tilled for winter corn lie contiguous to each other, and are manured; the fields for summer corn lie also in one batch; and the third portion is left in

* See Burger's admirable account of the agriculture of Lombardy and Venice, where the rents of no less than thirty-three farms are specified, and which vary from £2 to £3 : 10s. per acre, exclusive of land-tax.

fallow. This is done that the fallow may afford a common pasture for the flocks and herds of the village, under the care of one herdsman. The principle of association is, however, not carried so far as to make them employ but as many hands and as many horses or oxen as would be requisite to till that land. The proprietary rights are still scrupulously insisted upon; and a man, with but a few acres, finds a motive for keeping two, or even four horses to till them in the bad state of the roads leading to or from the lands to the village. In Hungary, a plough may be seen to go out with eight oxen and two men, to till a few acres at a distance of some miles from the peasant's house. Hence the production of food demands an enormous sacrifice of labour. The market price is no index of value, and no accumulation of wealth takes place, notwithstanding the abundance of food. The benefits arising from society, which, in countries badly provided with means of communication, might soon be altogether lost, if not maintained at some sacrifice, are secured to the peasants by the system of living in villages, and are justly appreciated as the means of keeping the people civilized.

In the long evenings, the village ale-house serves the purpose of a club, where the men usually meet, and the newspaper circulates intelligence respecting the events of the day. In remote parts of Hungary, German papers may be found, besides the papers of the country and light periodicals, whose moderate price is suited to the resources of the villagers on the scale that I have described them. The price paid for these advantages is, however, a high one, as it takes the farmer off his land; and if close economical calculations were made, this would appear to cause him a serious loss. These small farms are experiments of division of labour uncombined with an efficient system of combination. Even where the peasants' farms are managed in the systematic manner I have described, the little gain that accrues to them at the end of the year is frequently annihilated by floods, hailstones, epidemics amongst the cattle, and other accidents. On such occasions, the government makes an abatement on the land-tax. Existence is thus supported by the aid of the females and children of a family, who invariably work with the men in the fields by day, and at night and in the winter spin the flax and wool for clothing. Of course, in a country where such a system prevails, there is no such thing as money-rent. This is the stage of society, and these are the

countries, where labour-rents prevail. The large landowners vary their productions by brewing and distilling, or making sugar from beet-root. Oil is made from poppies and rape, and fruit and tobacco are grown in the parts near the Rhine and in central Germany, where trade has improved agriculture. In these parts of Germany, as in Italy, an estate is occasionally, but rarely, let in partnership to a farmer, who is furnished with stock and seed, and who takes a share of the nett produce as the return for his labour. But these contracts are rare; and where money-rents are found, they are ridiculously low. I have heard of an estate of 100,000 acres let in Hungary, by the crown, to a large farmer, at the rent of one florin, or two shillings per acre.

In times when Englishmen were accustomed to allow some influence to the opinions current in other parts of Europe, there was no difference between our agricultural system and those followed by neighbouring lands that were on a par with us in point of intelligence. All bought where produce was cheap, and sold in the best market. France then imported wheat from Ireland in exchange for wines. Each producer suited his crops to the demand, and bought and sold in the best market he could hear of. Under these views, Dr. Smith gave his short but comprehensive definition of rent, as *the portion of the gains of the person employing the land which he FINDS it worth his while to pay for its use*. This definition makes the value of land depend on its cultivation. On the farmer's intelligence in arranging his crops, no less than increasing the efficiency of his labour, depends the profit that the land can yield. This definition, Gentlemen, the production of the last century, acknowledges that human power is intellectual. Had its author but had a glimpse of the mighty substitutes for his muscular power that man was on the point of commanding, we should not have owed to him the labour-test of value.

The instances I have adduced show that two calculations are necessary respecting the value of land. These calculations correspond to the principles laid down in the last lecture. The first consideration for the farmer is, not what the land is able to produce, but what the best market demands. The consumer gives the law, which the producer follows as well as he can. Having chosen the most profitable system of cropping, the farmer next directs his intelligence to the best mode of exe-

cuting it. In no part of central Europe are crops prescribed by legislative enactments, or bad systems supported against experience. These examples prove too that agricultural profits are everywhere in direct proportion to the intelligence displayed, to the security obtained, and to the competition experienced by farmers and landowners. But I must trace our fall from this simple and admirable view of agriculture. While it prevailed, we were on good commercial terms with our neighbours—our labouring population was considered the happiest in Europe. The deplorable change that came over this empire sprang from a theory that I must now explain. It is a remarkable instance of the dependence of those who call themselves practical men upon principles. After many years of war and an unusual isolation from the rest of Europe, the supply of corn expected to appear in our markets began to be calculated according to the quantity raised at home. The importance of the home crops was enhanced by the rapid increase of the population. It was found that foreign importations, impeded as they were by the circumstances of the war, were not able to affect prices seriously. The bad supplies that could be commanded in the two years of famine, 1816 and 1817, confirmed the notion that our supply of grain was limited, and could only be increased at great sacrifices. On these observations, a theory was reconstructed by Mr. Ricardo, which it seems had been put forward and was rejected during the life of Adam Smith.

Dr. Smith's theory, as we have seen, attributes to the land no inherent quality, by means of which rent can be obtained from its cultivator, beyond its general usefulness*. Mr. Ricardo deems rent only to be yielded by food.

The Ricardo theory of rent applies this principle in the following manner. It asserts that of five parcels of land, of varying qualities, rents will only rise on the best according as it becomes indispensable to cultivate the worst land for the production of the same crop. Thus, if

No. 1 yields 50 bushels per acre,	No. 2 yields 40 bushels per acre,	No. 3 yields 30 bushels per acre,	No. 4 yields 20 bushels per acre,	No. 5 yields 10 bushels per acre.
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* "Had land always yielded the same or a greater proportional return to every fresh outlay of capital and labour, the entire supply of food required by the most populous nation might, it is obvious, have been raised from ten acres,

This theory, applied as it has been to the growth of corn, declares that a farm of the quality of No. 1 will yield a rent of £500 only, when a farm of the same size, but of the quality of No. 5, yields £100;—that as soon as rent for wheat grown on No. 1 becomes £400, No. 5 will yield no rent, and the other numbers proportionately less. Now we know that no practical farmer restricts his cultivation to any one crop. Besides, to make this theory true, the cost of cultivation, even of wheat, must be the same upon all the soils, which is not the case. If this theory therefore, which we find must have been known to and rejected by Adam Smith, had not been practically rendered important in England by its adoption by the legislature, we might dismiss it here, as all foreign political economists have done. It will, however, be useful for us to look at it a little more closely.

Let us test the Ricardo theory in detail by my account of value. We may suppose five lots of land of various descriptions offered to farm. One shall be a rich loam, suited to the growth of wheat in all seasons; a second shall be a heavy clay; a third shall be a light sandy soil, like part of Norfolk; a fourth may be fen land, like the Isle of Ely; the fifth may be heath, like Bagshot Heath or Chat Moss.

The farmer who bids for lot No. 1, before he lays himself out to grow wheat, will, if he be wise, inquire the comparative value of flax and rapeseed, and other crops, the price of which is commonly high when wheat is cheap. The landlord would, from a skilful farmer, obtain a higher rent for these crops off the best land, if wheat could be cheaply grown elsewhere, than wheat itself could afford; but he would only get this rent as long as wheat continued cheap. The farmer of the clay soil would probably give a rent equal to that of the first lot, if the cheapness and abundance of wheat allowed him to pasture profitably. Were he obliged to compete with the other in growing wheat, he would have to marl and under-drain the heavy land, and would not, of course, pay the same rent for it. Enormous sums are daily spent in fitting land to grow wheat, that is not by nature suited to produce such a crop. But these are only English calculations. In Germany and France, the clay soil would

or even from one acre, as easily as from millions. In such a state of things prices could not have risen and rent must have been wholly unknown.”—*Mr. McCulloch's Note 3. to Adam Smith, p. 446.*

suit the vine. In Italy, the fen would be invaluable for rice or cheese. Even in England, it is paid high for as dairy land. The light sandy soil in the hands of a Fleming would produce the finest flax and artificial grasses. Bagshot Heath, under the hands of Dutch gardeners, would yield high rents, but only if the cheapness of wheat allowed people in England to spend a good deal of money in flowers. Now, what has become of the relative fertility of all these soils? Each is suited to some particular kind of cultivation—the value of the majority of which depends upon cheapness of food. All change their crop, whatever be their quality, with the growth of population and the spread of towns. The demand thus occasioned causes a continual transition from one series of crops to another. Each becomes in succession more remunerating the cheaper the preceding one is produced. The moment that we introduce the element of scarce and dear food into the calculation, we destroy the natural value of all soils; for even what are considered to be wheat soils yield most in flax or rapeseed crops when wheat is low in price. In this manner has it been possible for an erroneous economical calculation to unhinge the agriculture of these islands; to transplant to Holland a large portion of our dairy farming, to Russia and Belgium our flax crops, to America our tobacco and our apples; to expel the poultry from our farm-yards to France, that now supplies us with eggs and fowls, and to limit the enjoyments of our population by depriving them of fruit and flowers. The true diagram to illustrate the theory of rent would therefore show the rates of profit as follows:—

Grain, 10.	Raw materials for clothes, 20.	Dairy produce, 30.	Gardening, 40.
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The great responsibility incurred by the author and the teachers of the Ricardo theory of rent, the error of which has been exposed by Professor Jones, of Haileybury, arises from the evils to which every slight of the power of human reason inevitably leads*. The most imminent danger threatening a nation that adopts it is that of the slavery of the mass of the people. As food gradually advances in price, the value of all other commodities declines. Rapid improvements in manufacturing industry

* See 'Essay on the Distribution of Wealth.' Mr. Ricardo's theory of rent was never adopted by any foreign political economist. Say, Storch, Rossi, Hermann, Rau, adopt Adam Smith's theory.

may retard, but cannot preclude the ultimate catastrophe. The constant advance in the price of the great necessary of life, which is inevitable, were the Ricardo theory true, must in time absorb all the industry of the country to pay for food. I venture to appeal to our own experience during the last five years, and ask whether we have not in that interval had a foretaste of what this system leads to? This is the true key to the mystery of the distressed condition of the agricultural labourer. His master is doing bad business, and cannot afford high wages. It is not because the labourers do not combine that they are ill-paid.

To save what they could in the alarm caused by this theory, the English landowners resorted to the prevention of foreign competition. It is to this that we must ascribe the want of machinery, for an improved grain cultivation. There can be no doubt that if the wholesome pressure from which the other nations of Europe have not shrunk (at least, not to the extent that we have shunned it) could be applied to our farmers, they would long since have endeavoured to substitute mechanical for human muscular force. The agricultural labourer would then be raised in the social scale as the factory operative has been, while the saving occasioned by the change would have opened new fields for industrial enterprise. In England, indeed, it would probably have been found useful to leave the culture of grain, like that of sugar, to the colonies, or other tropical lands. The demand consequent upon the cheapening of corn would then soon have absorbed all the disposable land in these islands for the far more profitable cultivation of crops, that would then, and *only then*, remunerate better,

My wish is now not merely to expose the fallacy of the Ricardo theory of rent; I wish to assert that its reverse alone is true. But why is it that dear corn is a source of loss to all parties? It is because we can only gain by *economising*. What a man *saves* in his outlay for bread is what he has to *spend* in linen, in oil, in butter, in cheese, in meat, in cloth, and in beer, or in wine or sugar. Who are the consumers of all these objects at once? Of course, the rich. At the rich man's table you meet all articles of food. In his wardrobe you find cottons, woollens and silks piled up together. The poor man chooses between beer and tea for his meals, between meat and cheese, between cottons and woollens. Then what does the agriculturist evidently reject in England—what does he undervalue as a

source of profit when he builds his hopes of gain upon dearness of food? Does he not put this out of the power of the largest class of his fellow-citizens? The difference between the sum laid out in the purchase of 20,000,000 of quarters of wheat in 1839 and in 1834, amounted to £20,000,000 sterling. This was abstracted from other crops and from manufactures. Who can wonder that a general stagnation of trade took place? It is to the outlay of what the poor would save in the price of bread, if they got it cheap, that the agriculturist must look to pay for the flax, the rapeseed, the hemp, the hay, the butter, the cheese, the meat, the hides, and the wool, which he would *then* grow with more profit than grain. The cultivation of wheat, as too expensive and unprofitable, we might well leave to distant lands, for it would bring back far more remunerating crops, many of which are now banished from our islands. The farmer and the landlord are, therefore, the parties most interested in the rejection of our present corn-laws, which make wheat a profitable crop at the expense of every other. They ought to be clamorous for their repeal; for no one can deny that cheapness of corn will increase the demand for every other article of agricultural produce. The agricultural labourer ought to join in the cry, for these laws prevent the extension of the scale upon which grain is grown; they prevent a demand for those more costly articles which can be grown upon a small scale. The corn-laws thus deprive us of the only means of raising wages. We have seen continental landlords fare well by acting on this principle. Rent is the share of profits derived from the use of the land which the party hiring is willing to give to the owner of the soil. Rent, therefore, is measured as a general rule by the rate of profit obtained in all branches of industry in the same country. It fluctuates therefore according to the good or bad legislation, the state of knowledge, of morality,—in short, of all that influences the growth of wealth and of prosperity.

But rent, like farming profits, follows the law laid down, and both must often, where land abounds, be reduced in rate that they may be increased in amount. Hence in thinly peopled countries where soil and climate are favourable, crops of gross produce would be cheaply raised on a large scale with advantage both to the landlord and the farmer. For all other countries who can avail themselves of this aid, the prolific nature of a great portion of Europe and America ought to prove beneficial. There

are however peculiar limitations on the size of farms, even where land is of the least value. The time of men and cattle spent in going from the homestead to outlying fields is a loss to the cultivator, and where cattle are the only propelling force, the scale of farming operations is much more limited than where canals or other machines are available. Calculations have been made by good farmers in Germany of the loss sustained by the distance of fields from the homestead*. A similar calculation is the loss sustained by distance from the market for produce. But the force employed makes the greatest difference in these calculations, and grain is more easily brought from Odessa to London by sea, than it is transported in many parts of Germany thirty miles by land-carriage. It is on this account that all fixed rates, such as tithes, land-tax, county and poor-rates, and even turnpike-tolls, press so variously upon farms in different situations. The operation of these imposts has the greatest influence upon the rise and fall of rents.

I have alluded to the state of the laws in those parts of Europe that are most backward in agriculture, as having impeded progress. This applies to other legislative enactments than those which directly fetter exertion. Some attempts at improvement have been, perhaps, even more mischievous in their effects. The transition from one state of economical progress to another is easy, and need not be accompanied by the least inconvenience where property is secured, intelligence promoted, and exertion unrestricted. It was in some attempts to force a hasty improvement by means in which these indispensable requisites were lost sight of, that the German legislators of the last and the present centuries went astray.

The inevitable snare into which all theorists fall who ascribe inherent value to objects of use, and who deny the power of intellect to confer on them a higher value, is that of rendering property insecure. If the power of producing food lay in the earth, and not in the man who tills it, the problem of the proper distribution of property might be one of mathematical calculation; but if the production of food depends, as I say, upon the individual tastes, feelings, and wants of men, the only way to spur them to exertion is to secure to each the enjoyment of the share he gains in the manner he likes best: to enjoy the most, he has only to produce the most. What he does not want he

* See Von Thünen, *Der Isolierte Staat*.

exchanges for other objects, and in doing so his inclinations are, or ought to be, unfettered. Wheaten flour is precisely the same article, whether produced in Canada, in Buckinghamshire, or in Podolia. To all who buy in markets, it must be indifferent who grows the grain produced and where it was raised. We can, therefore, trace the rise of certain opinions unfavourable to the security of property and the exertion of individual industry solely to the interference of landowners with the liberty of others. It is, as I say, indifferent to a Liverpool merchant and a Manchester manufacturer where the raw produce is grown that he requires, provided he can get it everywhere on equal terms; but the attempt to prescribe a market to him to buy in is one which inevitably leads to retaliation. If he is obliged to purchase certain crops, nobody can deny his right to prescribe the mode of growing those crops. If wheat is not to be made more accessible than it has been for some time to our growing population, we may rest assured that the people will resort to modes of controlling the use of the land, in terms incompatible with security of property. It is to be lamented that philanthropic characters, like Robert Owen and Fourier, saw no way but this to meet the exigencies of the crisis. But it must be evident that no argument regarding the loss for all, that would ensue from the destruction of all other kinds of property, would be heeded, were a social revolution brought about by dearness of food. When food grows scarce, all things else lose their value, as we have seen. Their loss would therefore be little regretted, and all remonstrance in their favour would be powerless.

It is a singular piece of inconsistency in our times, that some, who set the highest value upon the free agency, and consequently upon the responsibility of man, support the notion that he is dependent upon particular qualities of soil for food*. Others, again, who wish to escape from the yoke of responsibility, would throw off all that appears to interfere with the most effective cultivation of the land, in order to remove the difficulty of procuring food. Were the latter successful in obtaining supplies of food on easy terms, they do not see that, from the moment it is provided, the responsibility of man commences.

Thus in Owen's and Fourier's systems, the more certain a body of men are of obtaining food and clothing by means of association, the more imminent is the temptation to gratify the

* Dr. Chalmers's Treatise on Political Economy is a curious instance of this conflict between necessity and responsibility.

longing after liberty. It seems to have escaped the notice of these theorists, that the scheme of dividing the land of a country amongst the bulk of the population has really been tried in several countries. I cannot, from my investigation, report favourably of the experiment.

The experiment was tried directly by open rapine in France, when the lands of the crown, of the church, and of the nobles were divided into lots and sold at low prices. In Germany the project of *fixity of tenure** was tried nearly half a century previous to the French revolution. In Prussia—whose overthrow in 1806 is in a great measure to be accounted for by the demoralization consequent upon the violation of property—matters were carried even farther than in Austria. The suit and service chargeable on the land, as well as the corn and money rents, were declared redeemable for a quantity of land that was to be ceded in lieu of them to the landlord. This last measure has only been partially carried into execution. A division of the soil amongst those who till it without profit, inverts the natural process by which hands ought to be constantly removing from the land into more profitable occupations, until the increase in the value of fibrous, green, and other crops recalls attention, and induces men to cultivate small holdings. This natural progress in cultivation has been checked in all those countries of Europe where security of property was shaken by the ill-judged legislation mentioned above. Hence the poverty of the small land-owners both in France and in Germany, and the difficulty experienced in those countries of economizing labour so as to enable them to manufacture. The peasants were in fact, by receiving a gift of the soil, bribed to continue an unprofitable occupation.

I hope that my arguments showing that by consigning the growth of grain and gross articles of food to countries where they can be produced on a large scale, at low prices, is the way to ensure high remuneration for other crops, will lead to a careful consideration of the defects of our present agricultural system. Not only is the assumed natural disparity of soils no source of rent, but if it existed, the sterility of the poor soils would take away all value from the richer. The richer soils would then, as the Ricardo theory supposes, be condemned to grow food only; that is to say, the product which must always be sold cheap if

* This subject has been discussed in the article on Mr. Laing's "Notes of a Traveller," in the 'British and Foreign Review,' No. 32.

any other product is to have value. I hope I have succeeded in giving the farmer a practical rule by showing that the value of all his other crops increases in proportion to the cheapness of food. The landowner is still more deeply interested in this mode of estimating the value of land. For the landowner it is necessarily a matter of indifference from what use of the land he draws, provided he gets, the highest rent. This is clearly to be expected from building land. With the accumulation of population land comes into demand for building, and a due proportion is then also abstracted from what is farmed on a large scale, to be used for dairy farming and as gardens. That the increase of towns is mainly dependent on the cheap price of food, I need scarcely prove. Hence, all the landowner has to cultivate is the general advance to prosperity of the country at large. He cannot miss his share of the benefits derived from improvement when they do come. But in the present state of things in England, the landlords can do the most that is requisite to hasten its progress.

The first step to improvement will be to discard the prejudice that now vitiates all calculations, and assumes that food alone produces high rents*.

* To cke out the Ricardo theory, the monopoly theory was superadded. It is thus stated by Mr. McCulloch :—

“The two sources of rent above described, fertility and proximity to market, are totally distinct from those peculiarities of soil or situation which afford a rent on the principle of monopoly. Tokay, fine Hock, Chambertin, Constantia, or any particular kind of produce obtainable only from particular soils and in limited quantities, may, from deficiency of supply, fetch a price exceeding in any possible proportion the cost of production. The whole of this excess, after deducting the ordinary profit upon the capital, naturally goes to the landlord. Land occupied with dwelling-houses, gardens or parks, and possessing peculiar beauties of situation or disposition, is also of the nature of a monopolized article, and its rent is entirely governed by the demand. It cannot indeed yield less rent than if it were devoted to agriculture, but it may yield a vast deal more. When any situation affords greater facilities for business, as for example when a shop, by being in a fashionable part of the town, enables the occupier to obtain greater profits than could be made in a shop possessing no such peculiar advantage, this extra profit will be added to its rent. The reader will easily trace how much is analogous to rent, properly so called.”—*McCulloch's Notes to Adam Smith*, p. 447.

A calculation quoted in the ‘British and Foreign Review,’ No. XXXII., shows that in Belgium the land cultivated under the influence of town neighbourhood brings in a larger sum to the owners than the agricultural rental of the rest of the kingdom. It is not improbable that a similar calculation might be made for England. In these cases, which is legitimate and which monopoly rent? Besides, the so-called monopoly rents go on increasing with the prosperity of the country, and the agricultural rents decreasing. What becomes at last of the rule, and what of the exception?

We often hear the uncultivated land in England alluded to, sometimes with surprise, more frequently in terms of indignation. Why land should remain unused can only be explained by the fact of its being unsuited to the sole use that can now be made of it. Wheat is now the crop sought, and wheat cannot be profitably grown on Chat Moss or on Woking Common. To produce grain in these districts, years of sacrificed labour and large masses of capital would be required. But can nothing else be grown? Would a Fleming, a Dutchman, or an Italian be deterred from cultivating these tracts of land? We know they would not; nor would Englishmen have let them lie waste if the demand for the crops which they would produce were not limited by the high price of grain. The receipt I should give for getting our waste land into cultivation is, therefore, a different one from that sometimes proposed. I would not unsettle property by taking it away from the present owners in order to give it to some who might chance to use it better. I would rather see it made worth the while of the owners to cultivate it by creating a demand for all kinds of crops, which can only be done by cheapening the price of grain.

If the plan of encouraging competition, which will alone stimulate our domestic production, be not resorted to, the alternative is inevitable. With the growth of population the pressure of distress must go on increasing, until it overwhelms us all in common destruction.

It cannot be denied that our excellent trading and manufacturing organization have deferred the crisis which thus threatens. Other nations that do not enjoy these advantages are on a par with us in general prosperity. They would be before us if they had cultivated trade as we do.

But where there is no security of property and no due organization of labour, even abundance of food is of no advantage to a country. On the contrary, the desire for progress which exists everywhere, even when repressed, is fostered by a consciousness of the power to gratify it, and causes dangerous ferments that usually explode on any favourable occasion. In this position are the Russian and Austrian empires, and the southern states of Italy: this accounts for the present disturbed state of Spain and Portugal. Our Indian empire is perpetually on the brink of such a crisis, which, if not anticipated, may lead to fearful scenes in that quarter of the world.

The countries of Europe in which agriculture is backward are those where cities are few and far between. A town of 2000 inhabitants is considered remarkable in Germany. Belgium, Holland, the North of Italy, and England are, on the other hand, studded with cities, while the rural population is scattered over the face of the country, but not in such a manner as to be lost to society. Here, too, the rents in cities are high, and the ground about them in great demand. The agricultural rents near Milan are nearly as high as near Edinburgh and London. Building land sells at Brussels at £10,000 per acre. In the larger German towns it is rare to find any such value; and if a speculator in many parts were to build on a large scale, he would run the risk of finding his houses as little sought by the inhabitants, as the rivers, waterfalls and mines that abound and are turned to no account. Besides the want of a due insight into the value of the organization of labour, which would make all classes anxious to draft supernumerary hands off the land in order to employ them in other occupations, the state of the laws and of the public communications have hitherto prevented the development of the resources in the German and Slavonic states. The sovereigns withhold the political rights which the educated classes demand. The nobles, too, oppose all concessions to their fellow-subjects, not seeing, that with the manufacturer and trader a new species of property arises, which the citizen feels is not secure when he has no share in legislation. If the landowner understood his own interest, he would favour every new claim of property instead of opposing it; for when he does the utmost to render his land valuable, he is dependent eventually upon the co-operation of the citizen for success.

In matters of legislation, as in matters of business, the landowner who allows a proper share of influence to every new and enterprising class of industrious occupiers that comes forward to propose a new mode of using the land, will find his interests best consulted by so doing. As his rental can only gain by the increase of competition for the employment of the land, his moral ascendancy must increase if he devote the leisure thus left him to encouraging and aiding the new-comer, instead of thwarting his exertions.

LECTURE III.

MANUFACTURES—PROFITS—WAGES.

WE have seen that the manner in which the agriculturist fills his post at the opening of the industrial scale, fixes the number and proportionate importance of all other branches of industry. Food, as the primary want, must first be satisfied, whatever sacrifice it may cost. Until food is provided, no other want is urgent, nor were it ever so distressing, could it be regarded. But in proportion as food grows abundant, the other wants rise in importance, and a constantly expanding series of desires is awakened, which are, however, classified, as we have seen, according to their different grades of pressure. In the first instance, rude clothing and mean dwellings,—then delicacies for the palate, ornaments for the person, commodious, rapid, and elegant conveniences for travelling, succeed each other, as wants demanding satisfaction. The enjoyment derived from the gratification of cultivated feelings and tastes closes the list for rational beings.

If the moralist is struck with admiration at the contemplation of this beneficent dispensation of Providence, by which our wants may, in some measure, be said to be created by the means of satisfying them; the political economist prizes no less the united bounty and wisdom which thus opens to man the prospect of indefinite enjoyments, to which the sole condition annexed is, *that he shall appropriate them.*

The labour saved in agriculture by exertions of intelligence, whether directed to the improvement of processes, to moral progress, or to wise social combinations, is all that a community commands for manufacturing industry. Knowledge and exertion make this fund go farther in some countries than in others. It is most efficacious where security of property enables large bodies of men to abandon other modes of production altogether and to devote themselves to one task. This division of labour, far from militating against the principle of association, is im-

practicable unless the true association ensures an interchange of the productions that are multiplied by its means.

But were this multiplication of our producing power to be dreaded as an evil, were wealth to be measured by the cost of production, and value to be estimated solely by the labour used in producing processes, then must the economy in agriculture on which manufacturing industry is based be dreaded as an evil. Every improved process in manufacturing would diminish the wealth of a community.

It must however be evident that as the manufacturer requires food as well as the farmer, there can be no room for him until superabundant food is provided wherewith to nourish him. Again, if the farmer is to have clothes, he must either devote some of his time to make them, or must grow food for those who do so for him. Both plans have been tried, and the latter has been found the most efficacious. Men are brought to adopt this arrangement by means of that capability of the mind which I have pointed out to increase its desires where there is a possibility of satisfying them. Until food is supplied, man scarcely feels any other want. Hence the manufacturer takes the second rank in the industrial scheme. The demand for what he produces grows in proportion as food and raw materials cheapen. The farmer, by extending his scale of production and reducing his *rate* of profit, both increases its *amount*, and forcing his competitors into the new fields of industry which he thus opens, the increased profit is divided amongst fewer claimants.

The important place in political economy which manufacturing industry is entitled to occupy has not yet been clearly pointed out. The celebrated treatises on the science of the last century, in which the largest views have been propounded, were composed before manufactures had attained that development which makes them for some countries a matter of so high an interest, as to absorb many other economical considerations. Even in recent treatises we do not find manufactures clearly distinguished from handicraft arts. And yet it is of the utmost importance that this distinction should be fully comprehended. *Factory industry*, to the products of which the common term "manufactures" is still generally applied, differs from handicraft industry in the nature of the *force* which it employs to work tools. The mere use of machinery does not sufficiently characterize a factory, because we ought then to look upon the work

done by a turner at an ordinary lathe, or even the process of pumping by hand, as factory work, because performed with the aid of machines. The distinction is an important one which applies to the *force* used to set an instrument in motion, rather than to the *use* of any particular tool or machine, because any other power than that of the human hand is capable of indefinite augmentation, and replaces corporal drudgery by an appeal to human intelligence.

In order to define clearly the respective fields of factory and handicraft industry, it may be well to confine even the term *machinery* to the engines set in motion by other agents than the human hand, and to call utensils worked by hand-power *tools*, even though they magnify the power of the human muscles. In this manner the common pump, forcing-pump, and lathe would be termed tools, because the force applied to them is manual labour. They would become machinery as soon as animal force, air, water, steam, or chemical agents are used as their impelling forces. Thus, wind, horse, and water-mills, watches, ships, Mr. Clegg's atmospheric pressure tube, the galvanic trough, steam-engines, and the instrument named the Daguerreotype, are all machines, notwithstanding that they vary from gigantic dimensions to the compass of a pocket instrument. Thus, literally, handicraft labour is but the first stage of the development of power; machinery is the last and highest. The moving principle of machinery is a *secondary means*, not created, but discovered, and applied by human intellect. After a scientific distinction of this kind between handicraft and factory industry has been adopted, it becomes easy to follow the economical laws by which the growth of both is regulated.

According to our theory of power by means of handicraft skill, the usefulness of an individual to his fellow-creatures is exhibited in its most limited form. For ages the world had little other than manual power to command for the supply of some wants of the first necessity. The preparation of clothing, as we know, both in ancient and modern times, was long a domestic occupation, and as few were supplied by the labour of others with clothes and linen as with food. But as the spinning-wheel only made men more choice in their style of dress when it was substituted for the spindle, so the progress to machinery has only furnished a better supply of clothes than before existed.

The erroneous estimate of the value of man, which so much

retarded the progress of agriculture, impeded, in a proportionate degree, the detection of the grand source of human freedom and enjoyment,—the mechanical and chemical agents. Even the water-mill was unknown to the ancients, whose slaves pounded the corn in mortars, that furnished the household meal.

It has been the custom to call a factory any assemblage of workmen united by a single master, and to distinguish by the name of manufacturers all workmen who adapt the raw materials furnished by the earth for other purposes than food. There can be no good reason alleged for distinguishing the maker of butter and cheese, or of wine, from the spinner of cotton, and it would be useful if the agriculturist looked upon both in the same light. The thresher by hand, and the dairymaid, are of the same class of labourers with the hand-weaver and hand-printer. These are handicraft arts, and differ in the points I have mentioned from manufactures. Strictly speaking, an irrigating canal and a drain are machines. But it is easy to show the distinction between handicraft and manufacturing industry in every branch of production. The economical rule to which it leads in practice is the following:—Manufacturing industry depending upon forces that are capable of almost infinite multiplication, the sole limit to the extension of factories lies in the state of the market. It is, therefore, the business of the manufacturer to study the rule which I laid down in my first lecture, and to endeavour to augment his profits by extending his sales. Manufactures for this reason ought, in the first instance, to embrace all articles of necessity. Indispensable articles of food, especially grain, ought to be cultivated on a manufacturing scale. The greater the success of the manufacturer on a large scale, the larger will be the savings of his customers. This fund is what must defray the cost of handicraft industry, which, being practised on a small scale, proportioned to its more limited market, requires a higher rate of profit than will repay the manufacturers. In this position should our dairy farming and market gardening stand to the production of grain and cattle fodder. In the same relative positions should plain weaving, dyeing, and printing, stand to embroidery and painting. In many branches of production the first stages are effected by manufacturing, and the last by handicraft processes. Thus, to allow of profits in watchmaking and in cutlery, the miners and founders ought to be manufacturers. The more cheaply they furnish copper and

steel, the more the cutler will sell worked up into polished blades. The cheaper bobbinet is produced, the more employment there will be for embroiderers. The more abundant cloth grows, the higher tailors' profits and their journeymen's wages are likely to be.

The substitution of machines for manual power, which forms the great boast of our age, is the most successful result of the application of intelligence to industry. The first apparent change effected by it is to transfer production from small to large establishments. The spinning-wheel and lace-cushion give way to mills and factories.

This substitution being the foundation of a new social and political scheme, demands a precurring fulfilment of several of the conditions which I stated in my first lecture to be indispensable, where industry is to make progress.

The outlay that machinery requires, and the great number of hands which it collects in one establishment, make it necessary that the disposition to associate should prevail, and its advantages be thoroughly known, before it can be adopted. Again, the extent of these investments makes the security of this description of property a matter of greater importance than the smaller investments in tools, where hand labour prevails. The history of industry, in almost every nation, records instances of the attraction of manufacturers to new, and of their banishment from old seats; sometimes by the oppression of rulers, and at others by the violence of factions. As a result of the turbulence of the popular factions in the cities of Bruges and Ghent, in the fifteenth century, many of the trades migrated to Antwerp and to the Forest of the Ardennes, where the flourishing town of Verviers now stands. The popular commotions in Cologne drove weavers from that city into the same neighbourhood. The revocation of the edict of Nantes, which was the charter of religious liberty, cost France the bloom of her manufacturing population. Under the reign of the bloody Queen Mary many cloth-weavers migrated from England to Frankfort on the Maine, and had they not been recalled under Elizabeth, would, doubtless, have added a new element of wealth to that industrious city.

Factories and machinery moved by mechanical power cannot be removed, and therefore will not be erected where there is no prospect of security. The example of the continent, where, until long after the peace of 1815, machinery was but sparingly

introduced, shows that a feeling of security is an essential condition of the establishment of manufacturing industry. Even in France, of 1969 steam-engines at work in 1837, only 59 were erected before 1820; 1368 were built after the revolution of 1830. In the last century no other country in Europe could have adopted machinery to the extent that it was introduced into England.

It is the exposure to the ravages of war that renders our continental neighbours timid in embarking in manufacturing. The land cannot well be taken away from its owners, even if it change its political bond. But this very circumstance may prove fatal to a manufacturing establishment. The commercial policy, or domestic laws of the state, to which a country, after a war, may chance to be annexed, may differ with regard to the object it produces. They may discourage its use, or they may stifle all demand for it by what is called protection. But the danger to be dreaded from war is rapidly diminishing before a better insight into the interests of individuals and of nations. We must not shut our eyes to the inevitable consequences, in this respect, of the advance of civilization. The certainty of peace will be accompanied by certain competition. But are we to shun this test of intellectual power? Assuredly not. As no champion can be recognized in trials of muscular strength, but he who courts opponents that he may display his prowess; so there can be no triumph of intelligence—even no assurance of security—for those who withdraw from the race of mind and shun competition.

Manufacturing is likewise impeded in the majority of the states of the continent by the legislative systems of those countries. In all, the welfare of the people is supposed to depend rather upon certain modes of dividing the land, and of carrying on trade, than on the general state of intelligence. In some, a singular inconsistency is observable, the governments encouraging the spread of knowledge and the development of intellectual power, but withholding from the people the privilege of using the power thus obtained for their own benefit. The refusal to allow a share of political power to large and useful classes nourishes a feeling of insecurity, because these nations do not repose confidence in the classes that now arrogate the right to decide upon their country's fate. The manufacturer who belongs to a high state of civilization distrusts political forms that were a useful resource in less cultivated periods, when land was the only property. The greatest

detriment to manufacturing industry has, however, been occasioned by the distribution of the mass of the people in small agricultural establishments, where each grows little more than his own food, and that of course at the sacrifice of nearly all his labour. The dearest corn raised in Europe is perhaps to be found in some parts of Germany, where, on the other hand, grain can scarcely be sold at market. In such countries, there being no saving which can accumulate and provide capital to be employed in reproduction, the progress to wealth is necessarily slow.

On the banks of the navigable rivers, and in places where the traditions of manufacturing industry were preserved from the middle ages, factories have within a few years sprung up. Saxony, Rhenish Prussia, Silesia, Belgium, Alsace and Normandy in France, and some of the cantons of Switzerland have made considerable progress in organizing manufactures. Under simpler systems of government and protection against legislative interference, these attempts would soon prove successful and would induce imitation. It is chiefly to the measures adopted to force their success, that they owe the difficulties which they contend with.

In my next lecture, I shall point more in detail to the nature and extent of the competition we have to expect from our continental neighbours. Here I shall confine myself to the results which rivalry fortunately produces upon manufacturing industry.

The dread of competition, that is so general, arises from the proneness of the most practical mind to error in calculations of detail. Were manufacturers, agriculturists and labourers accustomed to reason from general principles, they would be put upon their guard against the dangerous fluctuations of prices: they would analyse the causes of their advance and decline, and would measure their exertions and their expenditure by a sound standard.

The cheapness of iron, the result of economy in mining and foundry processes, has at once stimulated and nourished the desire to substitute machinery for manual labour in England. To the invention of the hot blast for iron furnaces, and the consequent increased production of that metal, we are probably indebted for railroads. The late low prices of iron promised to cover the ocean with iron ships. We can set no bounds to the probable extent to which consumption may extend, because, even when our calculation of the nature of the home demand is ex-

hausted, we find nearly every country around us denuded of the means of obtaining wealth and enjoyment by a limited supply of iron. No instance can illustrate more forcibly than the iron trade the truth of the important proposition,—that the consumption of a necessary commodity will always keep pace with increased production at reduced prices.

The beneficial effects of competition are as evident, when directed on engineering processes, as they are in the case of food. On the success in engineering, and the precurring processes, mining and smelting, depend the production of every country, the wealth and happiness of mankind. How gratifying then to the mind is it to see, that the exertions to which the engineer is urged, by the force of competition, are accompanied by the reward that an extended market must yield! Every practicable decrease in his rate of profit must augment the amount of profit that he takes. To the recognition of this providential ordination, and its adoption as an economical law, we must owe the triumphant reflection that slavery *can never* again hurl man from the proud position in nature that is his birthright.

The masters' as well as the labourers' profits are increased by cheapening the cost of production: it is, therefore, no wonder that in a stirring age a vast number of minds are directed to invention. There is, consequently, no security for any one that the process he has adopted may not be hourly superseded; and this is, fortunately, the view taken of their position by both artisans and manufacturers of England, as is proved by the evidence given before the parliamentary committee in 1830. A current estimate has even been formed of the probable duration of a process; and it enters generally as a factor into the calculations of profit. This is as it should be. But such a calculation only determines a mean between two extremes, the lowest of which, if experienced where no due precautions have been taken, may entail the destruction of the fixed capital employed.

Perhaps a more scientific mode of planning manufacturing edifices would protect the capitalist from the heavy losses often incurred by the adoption of new processes. But the danger the manufacturer thus incurs shows the necessity for his making the strictest economical calculation before fixing a large amount of capital. Hence the weakness of building upon so unstable a foundation as prices, and the importance to the manufacturer of a general view of the laws governing production and consumption.

Protecting duties, monopolies, and bounties are all lures to the unsound investment of capital, as the experience of our own country, and the ill-chosen sites of numberless factories abroad, testify. Even patents, if speculated upon too far, are liable to lead into this error. Nor does there seem any encouragement held out to intelligence beyond that of an assuredly extended market, which is exempt from the chance of misleading. As an instance of incautious investment, I may mention that the very last large spinning-mill erected in Germany is at Augsburg, a city to which there are two hundred miles of land-carriage from the nearest navigable point on the Rhine.

Independently of the direct dangers to which the property of the manufacturer is exposed, from the elements and the decay of prosperity amongst his customers, we see that his is a position which especially demands an exertion of intelligence. This obligation becomes more and more urgent in every early branch, and the manufacturer of machinery is more affected by it than any one else. He may be said to *feed* the other branches of manufactures. *They* must have machinery, as *we* must have food. There can be no protection for machinery, or for metals, because any country suffering under such an infliction would immediately see its manufactures carried off by intelligent neighbours, who had cheaper and more efficient machinery. Cheapness, from competition, always leads to improvement. Belgium has protected its machinery, and almost ruined its manufactures; Prussia and Austria have done the same, with the same result. We were foolish enough to exclude, by high duties, foreign manufactured metal, and the result has been a deterioration in the quality of British iron that is notorious. Now one most evident conclusion that we must draw from these facts is, that the engineer, above all manufacturers, is bound to study the only sound rule for the tradesman, which compels him on all occasions to reduce his prices to the utmost, the certainty of increasing his sales being the premium held out to him to do so. The capital embarked in this species of manufacture is, therefore, altogether dependent on the insight obtained by all connected with those establishments into the nature of the association they form. The employer must see that he can only obtain sales by meeting the most active competition in the market: the whole manufacturing, the whole consuming world are leagued against him. The manufacturers cannot meet their rivals in the home or in foreign

markets, unless they have equally cheap machinery; the consumer will everywhere take from the cheapest manufacturer.

It is clear then, that if operatives are to get good wages, they can only find work by the willingness on the part of capitalists to enter into this stirring race. The possibility of manufacturing depends upon the intelligence of the few men possessing large capitals, ~~and~~. It is the *concentration* of capital that makes it effective. Pre-eminent intellectual and social capabilities are required in those who are to make even concentrated capital efficient. It is—I will not say the operative's duty—it is to his interest, to lend every possible aid to the men who undertake this task—to those who make the sacrifices which, under present circumstances, the manufacturer does make; since it is to the intelligence, to the diligence, to the perseverance, to the patience of the employers, that the operative owes the possibility of obtaining improved work and good wages.

I know it will be said that this most useful class of our fellow-citizens is not actuated by patriotic motives in subjecting themselves to all the risk, to all the toil, they now encounter in prosecuting their occupations. Gentlemen, all we have to consider is the happy circumstance that *any motive* will induce a man worth £50,000 to devote himself to the accomplishment of the great scheme that confers such benefits on humanity. Whatever may be the motives that actuate manufacturers individually, the result is the same: they create abundance for the consumer, and combine that abundance with high wages for their associates, who are, in their turn, consumers. That their profits are likely to be large where property is secure, is only another and a beautiful dispensation of Providence, which has made the prosperity of one man the condition of the prosperity of another.

But this law is one that requires to be studied by those who derive benefit from it. This is no law intended to release us from the smallest exertion of intelligence. We must seek to comprehend its scope, to secure its operation in daily life.

I invite you now to the most important part of my subject,—the theory of Wages. Here we shall again see the importance of establishing correct *principles* as forcibly illustrated as in the case of Rent, which I treated in my last lecture. The notion that rent could only be obtained from food, and that to obtain rent food must constantly rise in price, has led to the following conclusions respecting wages: "The profits in trade being the fund

to be divided between labourers and employers, profits can only rise when wages are reduced, and wages can only rise by encroaching on profits." Now, were this strictly true, it would still be the operative's best plan to assist in forwarding all improvements, for, if they did not add to the amount of his wages, they would very much increase their value*. As a consumer he would, with every improvement, be able to purchase more for the same sum. It is however *not* true and rests upon two gross errors. One of these assumes an inevitable constant rise in the price of food—a fallacy that I exposed in my last lecture. The other, to which I have also generally alluded, lies in confounding the *rate* with the *amount* of wages and profits.

Profits, of course, form the fund out of which wages are to be drawn. Now the manufacturer is not exempted from the general obligation that, we have seen, includes the agriculturist. In manufacturing industry the number of objects that must be produced, upon an extensive scale, in order to secure their general consumption, is quite as great as in agriculture. But for these we have no new worlds that we can resort to. The unpeopled savannahs of America and the waste tracts of Europe give us little direct aid for the extension of manufactures. They must grow food cheap enough to attract inhabitants before occupations, requiring little space, can be removed to them, or spring up there.

In this case, it is to the moneyed capitalist that we resort, to men whose industry has created, and whose enterprising spirit prompts them to venture, a large accumulated property, must we look to take this upon themselves. They alone can *reduce their rate, to augment their amount*, of profit; and we know that, by following this plan, abundance is universally diffused. Both money and land are capital when employed to assist reproduction. But a serious distinction has to be drawn between land and buildings, or machinery. Land can be applied to all pur-

* The following is Mr. McCulloch's view of the subject:—"It has been already seen that the cost of raw produce has a natural tendency to rise in the progress of society, and as the greater part of the wages of labour is laid out on its purchase, it is plain that the *rate* of wages, though occasionally reduced by improvements in agriculture, manufactures, &c., must also have a natural tendency to *rise* as society advances and population becomes denser."—*Note vi. to Adam Smith's Works*, p. 474.

This is tantamount to saying that the *amount* of wages taken generally must fall. If therefore the cost of raw produce can be made to fall as population increases, not only will the amount paid for wages rise as their rate falls, but it will go further than before.

poses. It can be planted, tilled, grazed, converted into a garden, or built upon. Hence in my first lecture I drew the conclusion, that those must be very narrow-sighted landowners who think they are only interested in the success of farming. The landlord's interest is involved in the success of all industrial undertakings. It is most deeply concerned in the rise and spread of cities, towns, and villages. The landlord who feels all the importance, all the responsibility, attaching to this position, is advantageously situated when compared with the manufacturer. He should in all phases of progress be looked to by his fellow-citizens as their natural ally, their encourager, their friend. This position however does not result from his merely owning the land; it clearly can only be gained by his applying it to the proper use. The landlord's test is also an intellectual one. His possession, under circumstances of free competition, will only be valuable where intelligence is exerted, and then it will be more valuable than any other.

But the manufacturer's investment represents, usually, only one phase of industry. The concentration of intelligence upon manufacturing processes perpetually endangers his hold upon our wants. New inventions unexpectedly supersede the most approved processes, and I believe that, in the current estimate, any approved engine or manipulation is only valued at three years' purchase. It is worthy of notice, that the first large factory for plating by the galvanic process was established at Birmingham, a town whose prosperity has hitherto been assured by a command of coals for steam power and for foundries. Of course, the notion of protecting a branch of industry thus open to the most active competition at home from the wholesome stimulant of foreign rivalry, resembles rather the conduct of those old women who smother children with swaddling clothes, lest the air of heaven should harm them, than the calculations of reasoning men.

In the risk arising from rival skill, the operative is only concerned as a gaining party. A new invention, if successful, demands hands to work it; and if it is so triumphant as altogether to supersede its predecessors, the market being extended by it, the *amount* both of wages and of profits increases, although their *rate* may fall. The operative does not share the risk arising from chances of war to the full extent. Men are always worth a certain sum for bayoneting or to be shot at,—not thirty shil-

lings a week, but at least something. In a hostile invasion the greater part of factory industry would be destroyed. The experience of the continent proves this, where the factories were ruined at the period when what is called protection was rigorously enforced under Napoleon's continental blockade.

But there are risks which the labourer shares with his employer : these are all such as spring from bad legislation, or the disturbance of social order at home. Whole branches of manufactures are suppressed; others find their markets destroyed, or limited by duties imposed on erroneous principles. Our glass works produce none of the beautiful coloured glass that is now common in Austria and Germany. The excise laws hitherto prohibited it. Soap and other articles of the first necessity after food, and of which the consumption would, at a cheap price, be unlimited, are much restricted in use by the duties imposed upon them. In Austria a direct tax is levied on traders and manufacturers of all kinds, varying in the large towns from £10 to £150 per annum,—levied for the mere privilege of being industrious. A very natural result of such taxation, coupled with delays in licensing, is to discourage small beginners in trade. A curious declaration has been elicited by this state of things from the Austrian nobles and landowners, respecting the value of manufactures for the landed interest. Nearly all have taken to manufacturing themselves, and the greater part of the large Austrian factories are carried on in the names of the nobles. Count Salm, Prince Dietrichstein and Prince Coburg are iron-founders and engineers, Counts Bucquoy and Harrach are glass manufacturers, Baron Dalberg and numerous other nobles make beet-root sugar. All large landowners are both brewers and distillers, and many enjoy the privilege of retailing malt and spirituous liquors on their own estates. I do not mention this in a depreciating spirit. I can see no difference between the production of grain or of glass, iron or clothing, excepting inasmuch as one may require more ingenuity than the other. The testimony of these nobles to the advantage derived from manufacturing industry by all classes is what I wish to point out, because it shows the folly of legislating to discourage them; and that the operatives, to whom they give employment, are served by their enterprising spirit, cannot be doubted. Another and a serious cause of danger to capital invested in manufacturing undertakings arises from social misunderstandings, which

have frequently the effect of changing their seat. Corporation restrictions to preserve monopoly, or to favour irresponsibility, are a constant barrier to manufacturing progress. Limitations of the right of settlement in towns, by preventing the accumulation of operatives in favourable situations, are also injurious, and are a constant impediment to their introduction into many continental states.

But the most singular danger they are exposed to arises from the false theory, which assumes that the profits of manufacturers are amassed at the expense of the operatives whom he associates with him in his undertaking.

It is strange that this doctrine should be directed against parties who, by large investments in machinery and buildings, give a guarantee that they intend to carry on business on the fairest terms. Whatever advantages the manufacturer starts with, whether of connexion or of particular skill, he cannot be protected against that competition which large profits are sure to invite. Now, if I have made out my scale of profits, or rather, of the modes of creating them correctly, the manufacturer can only escape from this competition by extending his enterprise—by reducing his rate of profit to obtain larger sales. This he cannot do at the operatives' expense, because the lowering of his price opens new fields of trade, which compete with him for workmen. Power-looms did not reduce weavers' wages: they created such a demand for bleaching, dyeing, and printing,—for packing, carting, shipping, shopkeeping and dressmaking,—that the manufacturers were obliged to give their workmen treble the amount of wages that hand-weavers of plain calicoes could get. Now, I would ask, what combination could treble wages? The improved machinery did it for those countries of Europe and for those counties of England, where capitalists were induced to come forward and erect machinery. On no other terms could it have been accomplished; in no other places has it been done. As the source of the low wages of the agricultural labourer is to be sought in the bad business done by his employer, so the fund from which alone high wages can be obtained by the factory operative is the profit of the capitalist.

A similar diagram to that which I used in my last lecture to illustrate the theory of rent, will serve to explain the economical progress of manufactures. If we represent the *rate* of profit as indicated by the figures in each compartment, the various branches

of production will stand in a position with regard to each other in some measure thus :

Mining	Engineering.	Ships and Roads.	Mills and Factories.	Distributing Shops.
10	20	30	40	50

The figures indicating various proportional *rates* of profit are of course arbitrary ; but we must acknowledge that the engineer has the better prospect of profit when mines are cheaply worked, as the millowner has when the means of transport and machinery cost him little. The distributing shops may represent all the handicraft trades that depend upon the perfection of the other processes, both for supplies to distribute and for savings wherewith to form the fund required for increasing production. We saw in my first lecture that the *amount* of the miner's profits need not be less than those of the engineer or millowner, although there is so great a difference in the *rate* obtained by each. The important point to hold fast is, that in any of the primary processes this amount can only be increased by lowering the rate. The amount would diminish if the rate were raised, because the sale would fall off in a more rapid proportion than the price could be augmented. Of course, the lower the rate of profit, the larger will be each establishment where the organization of industry is well understood.

A similar diagram will illustrate the position that one manufacturing process stands in with regard to the others. They may be said to stand thus :

<i>Engineering,</i> <i>Cotton-</i> <i>Milling.</i> }	Moulding, Cleaning.	{ Turning and Planing, Roving. }	Fitting, Spinning.	Polishing, Weaving.
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An increased efficiency imparted to the labour used in any of these processes re-acts upon the rest and stimulates all. Any saving in moulding or in cleaning, and in roving cotton, would create a greater proportionate demand for hands in the later processes than were previously required, for the simple reason that the improvement, having reduced the cost of production, would increase the demand for the object produced.

But the operatives may complain that it is hard for them to

be dependent on the goodwill and abilities of the capitalist, for the means of using their power effectively. To this I would reply, that their power really only lies in their intelligence. Their arms are only substitutes for machinery, until inventions supersede them. I would not here be mistaken. Men do not become dispensable generally by the introduction of machinery: their occupation is changed, their task is elevated, their share of profit is enlarged, where machines are used.

Even skill in hand manipulation is superseded by machinery as manual labour is. The most skilful hand could not accomplish the precision of copies that machinery effects. The exact thickness of bars or of threads, the exact spread of colours, independent of exact calculations of time, can only be attained satisfactorily by machinery. No coining engine will produce a medal so exact as can be obtained by the galvanic process.

But you may object, gentlemen, that I am taking away from the operative all claim upon the interests of employers; that I am destroying all the distinctions that study and diligence raise up for the reward of the good workman.

No, I am not doing this; I am only calling your attention to those qualities in man which machinery cannot supersede—to that power which is exclusively his own—to the value of his reason, of his intelligence. The extending scale upon which all processes have to be performed, the exactness with which copies are multiplied, open for the skilful a new field of exertion—that of originality of design. When copies are to be had for little trouble and cost, then will original productions of every kind acquire their true value, and thus will man's intelligence ultimately triumph over machinery. The road to this field of spontaneous exertion can, however, only be found through the perfection of machinery; for the necessities of all must be satisfied before all can indulge in the luxury of intellectual exertion.

For the operative who contributes to this grand consummation by giving machinery its proper efficiency, an early opportunity is afforded of using intellectual power. If manual dexterity is superseded by the machines he wields, another and a more beautiful field is opened for him,—one which extends with the growth of establishments—that of *trust*. As an associate, every operative in a factory is entrusted more or less with the prosperity of all engaged in it. Whatever be the difference in the nature of the work assigned to each operative, the trust that is reposed in him

is now the true measure of his value. It is by displaying a consciousness of this hold upon capitalists that operatives command the highest wages. Where they are trustworthy, the greatest number of persons will engage in trade, and the demand for hands must improve wages. Where there can be no trust there will be no enterprise, and competition from other parts will soon transfer industry from districts that reject this test of *moral* efficiency*.

It is because strikes and combinations are incompatible with this test, which gives every man the means of displaying those qualities that adorn humanity, that I must declare my sorrow at seeing them anywhere advocated. The interference with the right of any man to earn his living in the way he chooses cannot be delegated to any of his fellow-creatures; the right to carry his skill to any market he may select, he must be free to exercise. Restriction in this case is robbery; but to threaten and intimidate any who exercise their right of practising a moral quality, of showing themselves to be trustworthy, cannot be tolerated in a civilized community. The interference of any third party in the free compact between capitalist and operative is a despotism that, if established anywhere at the present day, must inevitably entail ruin upon the community that submits to it.

You may reply, that I have myself advocated the principle that every man must do his own work and take care of himself. The indication I have given of the field in which the operative *cannot* do anything but aid and stimulate the efforts of the capitalist, does not preclude my inviting, nay urging, him to activity in another sphere, where he *can* do much, and *must* do it himself. I shall best explain my meaning by at once pointing out what I think

* What else can account for the different wages paid in the same places? Mr. Finch gave the earnings of 4387 families in one ward of Liverpool in 1840, as follows:—

1342	families	are without visible income.
310	...	earn less than 5s. per week.
845	...	earn from 5s. to 10s. per week.
610	...	10s. to 15s. ...
727	...	15s. to 20s. ...
512	...	20s. to 30s. ...
41	...	30s. to 40s. ...

4387

The earnings of these 4387 families amount to £2023 19s. per week, being 9s. 3d. per family on the average; which, reckoning four persons to each family, will give an average of 4d. per day for 17,548 individuals.—*Statistics of Vauxhall Ward.*

lies within his power. We can trace the notion that labourers can only be remunerated at the expense of their employers, while profits are extracted from the sinews of the operative classes, to the original error that assumes all rent to proceed from dear food. The economists of this limited school, who have descended from the intellectual height upon which man was placed by his Creator, and have acknowledged their moral and physical dependence on the earth they tread, declare that food must constantly be raised with increasing difficulty. Dear food leading to restrictions in trade of course makes it desirable, because necessary, that labourers should be few in number. Hence, in the eye of an economist of this school, it is moral to abstain from marriage. This beautiful morality, like the view of wages, which supposes them to detract from profits, has its origin in that fearful theory of rent which I exposed in my first lecture.

There we saw that the dread of lowering rents by cheapening corn discouraged education, lest it should lead to improvements in farming. Here you are told that the welfare of the nation, and of the labourers themselves, depends upon their numbers being thinned. To men possessed with these views, the ships that leave our shores annually with thousands of industrious fellow-subjects confer a benefit on us,—the mortality that prevails in insalubrious trades must be an advantage.

Now the whole of this fabric falls to the ground together with the theory that rent is necessarily dependent upon high wheat prices. Dismiss this notion, and you find no difficulty in every man's earning his own food, and a great deal more besides. Look upon every increase of productive power as the stimulant to new wants, and as causing new demand for labour; then will master and labourer see that, instead of there being too many hands to employ, there will be rather too few; then shall we realize the good old English proverb which says, "The more the merrier."

Every operative commands means of raising the wages of labour that derive from the principle that has been adhered to through all these lectures. Saving is the source of abundance; if saving can anywhere be effected, a fund of wealth is at once created. Now, although many may think they are not extravagant, yet the fact is undoubted that every inhabitant of these realms squanders large resources. A delightful instance of the power of savings is afforded by the practice of temperance. A deficiency is noted in the excise duties of £800,000, which is

ascribed to temperance in the use of spirits. This amount of duty corresponds to a consumption of perhaps 1,400,000 gallons of spirits in Scotland and Ireland, and 800,000 gallons in England. The gain from this abstinence, allowing for adulteration, cannot be estimated at less than one million and a half sterling. What combination, may I ask, could have procured so large an addition to wages as this moral exertion? If we carry this mode of saving further in an account that every man may open with himself, we find that the spirit duty still exceeds £4,000,000. This shows, on a very moderate calculation, that £8,000,000 may still be saved by temperance without inconvenience. Now another very legitimate field of exertion for workmen is the saving that results from an amelioration of our system of taxation. I have alluded to the fund of £20,000,000 created this year by the reduction in our corn prices since 1840. The result you can judge from the improved condition of our factories, as compared with their state in 1840 and 1841. All were then working short time; all are now at full work. Now free competition in corn, by which I have shown that the farmer would be benefited, would, it may be assumed, reduce our average price of wheat to 30s. per quarter. This would add another twenty millions to the former, and would secure both as a permanent benefit.

Sugar is another article of necessity that might be lowered at least 20s. per cwt., under the influence of competition, with benefit to all parties. On four million cwts. this would amount to £4,000,000. Then soap, bricks, paper, glass, starch, and other exciseable articles, with all raw materials for manufacturing, now subject to import duties, ought to be freed from these restrictions on industry. The gain from this source cannot be estimated at less than £3,000,000. Every man's account with himself in these kingdoms would therefore stand thus, as compared with 1840, if by simultaneous exertion we obtained a change of our agricultural and commercial systems:—

<i>Dr.</i>	To amount to be saved on wheat . . .	£40,000,000
	To ditto on sugar	4,000,000
	To ditto on exciseable articles of necessity and raw produce	3,000,000
	To temperance in the use of spirits . .	8,000,000
		<hr/> £55,000,000

To this may be added the amount of saving possible under the suggestions of the Health of Towns Committee.

This, divided amongst five-and-a-half millions of families, gives £10:10s. per annum, or five shillings a week, additional to each. I am inclined to estimate the money saving that may be achieved by improving the health of towns at a sum equal to this. That all would receive their share, and that the operative classes would most benefit by the change, is certain. The stimulus to trade that must result from the creation of such a fund would cause a demand for labour, and again raise wages. But by the same process that raised the money price of wages, the value of that price would be improved. All necessary articles being reduced to half their price, wages would virtually double. What combination against masters could lead to this result, which is daily, nay hourly, to be obtained?

In my last lecture I spoke of the variety of crops which the land is capable of bearing, as the reason of the independent position of the landowner. I stated reasons for supposing that his most profitable crop was a crop of houses. This crop, gentlemen, is the true triumph of intelligence. When houses grow, man has well asserted his sovereignty on earth. But let no landowner believe that houses will grow like corn or grass at his bidding: this crop will only grow on conditions—on the condition of civilization.

Now where a crop of this kind is to thrive, the principle that every man has his task allotted to him, that none can do but himself, is usually most clearly illustrated. Its very productiveness debauches and enervates those who profit by it. We have seen that the boon of irrigation, and a proper application of the refuse of towns, is only to be obtained from the farmer by the aid of competition. How then are we to obtain irrigation and the application of machinery and drainage to town constructions from those who draw the profits of a crop of houses? Competition alone will secure this,—a competition based upon individual exertion. I will venture to give directions how to secure the comfort—the luxuries of large supplies of water and of gas, and of complete and cheap sewerage. To obtain them, the poorest tenant has only to demand them. To cause these indispensable requisites to be added to every house, you have only to make public your desire to enjoy them. No landlord will mistake the value of the opportunity you afford him of improving his property. It has been the notion that the working classes would show no preference for such advantages, that has hitherto prevented their being offered to them.

But I go further than this, and can even tell you why all can obtain, without paying for them, not only the comforts enumerated, but also the blessings of health and cheerfulness which they bring with them. An interesting calculation has been made of the extra sum that landlords demand as rent on account of the insecurity of their receipts. The causes of this insecurity are the chances of death, of failures, of stagnations in trade, the risk of fire, and other casualties that are preventible. A town supplied with the comforts I have named is, in a great measure, freed from the physical evils apprehended by landlords.

Those arising from moral causes are within our own control. A careful study of the theory of profits and wages, such as I have submitted to you, must show it to be the interest of all men to resist every attempt to disturb the harmony that should prevail between all classes of the industrious. A public declaration of this conviction on the part of the working classes, and steady repression of all attempts to excite unlawful aggression, would inspire such confidence that landlords would willingly make the necessary investments. The outlay, if judiciously directed, would not exceed eight per cent. on rent, or the sum now charged over the current rates of interest for the extra risk attending house rents. How high you may be inclined to rate this saving, which may be effected by a moral exertion like that which temperance has demanded, I shall not estimate. There can be no doubt that such a course, when once adopted, would lend to all, who entertain the views of reasoning men, a moral force in their capacity of electors, parishioners and members of associations.

In the language of Scripture, the labourer is worthy of his hire. We here see in what manner the benefit of the community is linked to the advantage of those who labour in its cause. Clear views of the field which in every country is open to the industrious man, according to the capital and the intelligence that he commands, ought to be imparted to all early in life. The manufacturer must especially distinguish between fixed and circulating capital, if he would escape loss. But above all he must seek to eliminate that element of gambling in his occupation which is induced by the uncertainty of our supplies of food. Much that is supposed to be mere speculation arises from this.

But I shall be asked, is there then no such thing as *over-compe-*

tion. Do speculators never ruin one another, and throw numbers of poor men out of work? This brings us to quite another field of investigation, but one which at the present moment is of peculiar interest. What is often called over-speculation—and really is so—proceeds more frequently from the fact, that the market is taken away from speculators, than from an erroneous calculation on their part. As the fund to be expended in comforts is only composed of the savings effected in necessities, so the fund to be spent in luxuries must be supplied by good economy in the two more urgent branches of demand. Anything that interferes with this natural arrangement must destroy a market somewhere. We have experienced this fluctuation within four years. In 1840, 1841 and 1842, there was great stagnation of trade; whole branches of industry were destroyed, thousands of operatives were without employment. If at that time there had been no competition,—that is to say, if no one had exerted himself to produce cheaply, or if many had not greatly reduced their rate of profit to effect sales,—there must have been still less employment, and many more thousands must have starved. The speculators were all at fault, not because people required less iron, less cotton, less cloth, less hosiery, or less lace, but because the fund that was to pay for all these less essential requisites in life was absorbed by the cost of the indispensable requisite, food. If the fund to be spent in all these things, and which creates a demand for labour, has been augmented by £20,000,000 in the present year, and has given increased prosperity to those who take advantage of it, a further reduction of 20s. per quarter would manifestly add as much more to the fund. Now, were the efforts that are directed to extorting high wages from employers, without creating any fund whence profits and wages are to be increased, concentrated on the improvement of the fund that we have pointed out, wages must inevitably rise, because there would be wherewith to pay them. The concentration of efforts in this direction, however, can only be based upon a conviction of the benefit of competition. It is only by subjecting the landowner to fair competition that the fund can be augmented, which is now curtailed by the high price of food.

There cannot be a better illustration of the advantages of competition than is afforded by the landed interest, which has long been in a stationary condition, and unable to raise such a fund to divide with the labourer as manufactures have yielded.

By averting competition from the growth of grain, those crops which are most suited to the soil and climate of the British Isles have, to a great extent, been banished to the Continent or to America. Butter, cheese, eggs, wool, flax, hemp, tobacco, rape and clover seeds, are imported in gradually increasing quantities from other countries, some of which could send us grain at about half the price. Again, the value of all these crops, as well as of garden produce, would naturally increase if food were cheap, because there would be a fund for them, as for manufactured goods, when money could be saved from the cost of bread. By opening competition in grain, the value of a wheat crop would then rate like barley or oats, and the farmers' *paying* crop would be one that had little value while corn was dear. It may be assumed that farmers would be no objects of compassion, if they were compelled to an exertion of intelligence that would fill their pockets. The manufacturer is obliged to exert intelligence, and they ought likewise to be forced to do so. Thus increased wealth springs up with sharpened intelligence, increased knowledge, stimulated activity. There is no close field for combatants, where they can choose their weapons and exclude competitors: the field is open for all; the most active has a right to the largest share of the spoil.

I venture to hope that ere long many of those processes which now deform the persons and narrow the intellects of our operatives will be transferred to machinery, and the only *labour* required will be that of the intellect*. That the path through which the industrial world is now advancing leads

* Mr. M'Culloch in his first note says, "It follows therefore that all effects may properly be considered as the product or the sequence of labour of some sort or other; but their value is entirely dependent on the quantity of the labour of man, or of capital, that is, of the accumulated produce of the labour of man and of machinery expended in bringing them about." Mr. Senior has refuted this fallacy by alluding to the ease with which Sir Walter Scott wrote a novel, and which yet sold for more than the productions of much harder labour. Were Mr. M'Culloch's proposition true, it would follow that sugar or other food grown by slave or hand labour ought to sell for more than what is produced by the new machinery. A number of slaves capable of producing 10 hhds. per week would cost about double the price of the vacuum pans suited for that quantity. The hire of so many Coolies would amount to double the interest of such an investment. It would also follow that the greatest demand for all commodities would be while the processes of producing them were rudest. How then would he explain the fact, that the exports and imports of all countries increase in value, even measured in coin, in proportion as processes of production improve and labour is economized? It is time to discard once for all the notion that man is destined to fill the place of a beast of burden.

eventually to this consummation, is undoubted. The prospect before us is one of constantly diminishing physical dependence and suffering, where an appeal from bodily to intellectual exertion is allowed. As what has sometimes been called the *intrinsic* value of a man's arms and shoulders for mechanical processes diminishes, the *exchangeable* value of his intellectual power increases, for the simple reason that more is produced wherewith to reward its exertion.

Now that this improvement has not been more rapidly perceptible, may be explained partly from the disturbing cause of the ~~labour absorbed in procuring~~ dear food. It is partly also to be accounted for by a natural effect of that cause—the slow accumulation of capital to be used in reproduction. Instead of complaining of a superabundance of capital now keeping down wages, we are inclined to think it is because we have too little capital that wages are depressed. More money, more machinery, more factories, would be our cry, if we thought that these beneficial adjuncts to our power would be obtained by any other means than the slow but sure process of industry, economy, and respect for property. The exercise of these qualities must be supported on the side of the wealthy by a corresponding moral course. Neither selfish sophistry, nor the plea of expediency, can any longer withhold from the working population the boon of cheap food, which would double wages at once for all the families of our operatives.

The skill and pertinacity with which altercations respecting the rights of employers and employed are carried on would, if transferred to the field where the universal enemy sloth lies coiled up within the wall of protection, soon furnish the means of restoring harmony with the growth of wealth, independence and intelligence.

LECTURE IV.

TRADE—PROFIT—WAGES.

WE have traced the laws that govern consumption and production through the two great fields of agriculture and manufactures: we have seen that they go hand-in-hand through the successive stages of our wants and enjoyments; and that while production, by furnishing constantly increasing abundance, attracts consumption, it is consumption, or the use made of what has been produced, that determines the field of production which it shall next be profitable to cultivate.

We have seen the independent position which man, by the bounty of Providence, occupies with respect to what are called natural resources. We have seen many countries rise into power without internal agricultural resources. We have found lands possessing manufacturing skill, transformed into vast workshops, whence half the world has drawn supplies of goods, the raw material for which has been supplied by the consumers. We have seen agriculture, obedient to the call of trade, expel the culture of one description of produce to make room for another, and agriculture itself make way for manufacturing industry. Finally, even manufacturing power is transient. An effort of genius suffices to fix the seat of manufactures in a sandy plain, on the banks of a stream, or at the mouth of a coal-pit. One of our last adaptations to mechanical uses is that of the electric fluid,—a substance of the subtlest nature,—to convey an impulse greater than is communicated by the fall of a ponderous mass. Nothing seems fixed, nothing stationary: the law of industry, like that of nature, decrees constant change, ceaseless activity, unrelaxed exertion, continuous motion.

But, independently of the silent and gradual changes thus constantly in operation, almost beyond our control, the surface of the earth is the scene of an unceasing activity, resulting from the daily wants of man. These, when left unrestrained, are constant and measurable, and we can both define and guide the activity which they call into play: they give rise to the current of interchange between man and man, between nation and nation, between hemisphere and hemisphere: they are the cause of trade.

By the aid of the trader, productive capital in distant countries is associated for the general good. The increased efficiency resulting from this association, which allows full division of labour, furnishes the fund upon which the trader relies, and it has at all times proved a rich one. If the Russian is to drink French wine, he must exchange for it, either directly or indirectly, the produce of fields, mines or forests, which form the capital of that empire. Of the imports of Great Britain, 60 per cent. are articles of food, 30 per cent. are raw materials for manufactures. They are paid for by the exports of manufactured goods produced in the factories which form the chief capital of England. If the association between the farmer and manufacturer, by multiplying the efficiency of the capital of each, enriches a country, the alliance of both with the trader again multiplies the former product. Hence we cannot wonder at the important part the trader plays in the progress of civilization.

We have seen that the Phœnicians emancipated themselves from dependence on their powerful neighbours, the Egyptians, by making their supplies of food a matter of calculation. This was effected by an intellectual effort, by the application of machinery to trade: their machine was *the ship*. With the aid of navigation, Tyre, and its great colony Carthage, attained a rank amongst the leading powers. The political influence of Greece depended upon the supremacy at sea asserted by her leading states. It was on the ocean that Rome had to contend with Carthage for the supremacy of the world.

The sovereignty of the ocean is the stepping-stone to political supremacy, because the successful power can become a protector of trade. Trade affords nations in a backward state the means of improving their condition: it presents to lands in which industry has made some progress, the means of turning this advantage to the best account. The trader is the universal friend; consequently he is the most powerful ally and the most dangerous rival. Yet his first appearance on any new field of activity has been constantly a cause of apprehension, and his property has usually been no more secure than that of the manufacturer. From the circumstance of trade creating wealth, it has at all times been taken for wealth itself, and has been exposed to rapine from kings, legislative bodies, and mobs.

The secret of the great extension of the Roman empire, and of its duration long after the decay of its capital and the turpitude

of its leaders was notorious, may perhaps be traced to the fact of its name having served as an excuse for unrestricted traffic to more than one half of Europe. The Roman empire was in fact an immense "Zollverein," and its capital, we know, was furnished with supplies of all kinds from the more productive regions of the earth. Had intellectual cultivation been studied so as to raise the people above the dangers arising from this abundance that surrounded them, what could have overturned the Roman sway? The decay of the Roman empire dates from the period of its moral decline; this involved many economical errors. It fell as soon as the system of taxation, so ably described by M. Guizot, pressed with destructive rapacity upon the rich citizens, and checked the ardour of commercial enterprise.

Under all the powers that have attempted to rule on the earth, has the trader sought a shelter from his foes. In ancient India, in ancient Egypt, the religious festivals were periods of trading interchange, and even now the Mecca pilgrimage perpetuates in Mahomedan lands the remembrance of the sanctity attaching to the character of the trader. The Roman military stations rendered the trader the same service, who repaid the obligation by conciliating the goodwill of the conquered, and presenting to them the means of paying their tribute. The overthrow of this protecting power, by its own demoralization, deprived the finest part of Europe, for centuries, of all the advantages of trade,—a circumstance that undoubtedly favoured the extension of the Mahomedan conquests. Rude warriors from the North, jealous of any influence but that which they could control, would not suffer an appeal to social relations which they did not understand, and still less to an element over which they had no power.

The extent to which insecurity of property arising from these oppressive circumstances impeded the development of the prosperity of Europe, is strongly exemplified by the fact, that the first cities and states which emerged from barbarism were such as by their position were inaccessible from the shore.

Amalfi can, to this day, be reached from the land side only, by a mule-path, that passes over a high and steep rock. Half a dozen resolute mountaineers, in ancient times, must have sufficed to guard its passage against the most rapacious or invulnerably clad men-at-arms. In the Saracenic cities of Sicily, Syracuse and Messina, the merchants of Amalfi learned the hos-

pitality that fosters, and the arts that promote, trade. In the tenth century they had warehouses at Cairo and Alexandria, and the Syrian coast was known to their mariners. In 1020 the venturers of Amalfi received permission to build a church, and found the celebrated hospital at Jerusalem, which proved afterwards so splendid a monument of their fame. Their code of naval law was a pattern for the other States of Italy and the Levant, as they rose in succession, and long formed the standard of justice for the Christian powers in the Mediterranean. From their intercourse with the Saracens it is now supposed that the Amalfitans learned the use of the mariner's compass, which they long had the credit of inventing; and it is an established fact, that the use of the compass was known to the Chinese in the third century of our æra. From these intelligent orientals it is probable that the Arabs learned its use, and of course it was immediately adopted by the Saracen navigators of the Mediterranean. It seems probable however that Flavius Gioja, or Gisla, a native of Positanum in the duchy of Amalfi, made the improvement in the compass of suspending the needle on a polished pivot: before this change the needle swam in water, but performed its functions, even then, in a serviceable manner. In the fourteenth century Amalfi disappears from history, having, like the Phœnicians of old, served as the pioneer for states of greater or better cultivated resources. Neither Genoa nor Venice possessed originally more agricultural resources than Amalfi. Like the last-named city, Genoa stands inclosed by rocks that defy approach from the land side; but its site is on a grander scale, and offered more resources available to art than the position of Amalfi. Pisa, lying in a limited but fertile plain, was in the first instance more independent of trade for supplies of food than either of the other cities: Pisa too conquered and took the fertile island of Sardinia from the Saracens; but these advantages did not give her any superiority,—Pisa sank under the rising influence of the Ligurian republic.

A trait that strikes us in the early commercial history of all the Italian seafaring states, is their readiness to fraternize with the Mahomedan powers, when a hospitable reception was offered them. The tendencies of trade are humanizing. There is nothing in the distinction of creeds which need prevent the exercise of the simple duties of the trader. During the period of the Crusades, the road through Trebisond, from the East, con-

tinued to be the most secure from interruption. The trade with the Black Sea, therefore, engaged a large share of the attention both of Genoa and Venice. Venice directed its influence more to the cultivation of the trade with Syria and Egypt. The trade through the Dardanelles was there long considered as but of secondary importance. Genoa, on the other hand, had from the beginning endeavoured to secure all the advantages of the Black Sea traffic. Her alliances with the Greek emperors caused the suburb of Pera at Constantinople to be ceded to her merchants, and their vessels were allowed to trade, and even to settle colonies on the coast of Tartary. Grain, which then (as now) was to be procured at the mouths of the Dnieper and the Don at the lowest possible price, proved one of the best articles of traffic at the great trading staples of the Mahomedans. In most of the treaties of commerce and friendship concluded by the Genoese, a stipulation is found, both for a freedom from duties on the corn which they carry, and for the liberty to re-export freely what they do not sell in any harbour. The possession, by the Genoese, of this key to traffic wherever they went, could not be eventually a matter of indifference to the Venetians, and the more so as their rivals enjoyed the same immunities and privileges in the Syrian harbours as they did.

All along the Provençal and Spanish coasts, the Genoese had consuls and commercial establishments in every harbour, whether Christian or Mahomedan. From Syria to the Straits of Gibraltar their vessels were everywhere well-received on the African coast. They had passed the Straits, and stood in communication with Lisbon, Flanders, and England. After the fall of Pisa, they acted as carriers for the merchants of the rising Florentine republic. To the westward the Genoese felt but little the rivalry of Venice; but new competitors in those parts entered the field. Marseilles and Barcelona, which rose on the fall of the Mahomedan Almeria (as Seville became famous as a Christian place of trade after the conquest of Grenada), extended the commerce of the East to the Iberian peninsula. In short, at no former period of history was so much commercial activity witnessed in the western world as then. The land routes from Genoa, through Switzerland, and along the Rhine to Flanders, across the Tyrol, through Augsburg and Nuremberg, into central Germany, through Aquileia and Carinthia to Vienna, Prague and Cracow, were all alive with trade. The most enlightened sovereigns, the

kings of Castile and Arragon in Spain, the Plantagenets of England, the Suabian emperors in Germany, favoured and in every way promoted the traffic that brought refinement and happiness on its wings. This was the age of the Berengers of Provence, of Alphonso of Castile, of Frederick II. of Germany, the age of Trouvères and Troubadours, of Dante, of Simon de Montfort, of Edward I., of Robert Bruce, of Swiss independence.

In the first years of the fourteenth century the Portuguese appear as navigators. One of the first historical notices of their trade is contained in a letter given in Rymer's *Fœdera* from king Edward II. of England to Dinas king of Portugal, in which allusion is made to existing treaties of commerce. Lisbon of course was a convenient station for all trading between the Mediterranean and the German Ocean. From the Baltic, the ships of the Hans Towns came also to Lisbon. The trade carried on by the Hanseatic League extended through Russia into central Asia. The factory at Great Novgorod in Russia was even more important than those of Bergen, Bruges, or London. In the fourteenth century the exports of wine from Lisbon were estimated at 12,000 tons, which very nearly equals the quantity exported at the present day. The moderate duties then imposed on wares exported and imported sufficed to enable the kings of Portugal to amass great treasures. Thus, with the aid of the trader, civilization arose out of the darkness that covered Europe. In the trading cities manufactures sprang up, and in the adjacent districts agriculture flourished. The growth of intelligence kept pace with the spread of industry, and in the period called the Middle Ages reached the proud height on which we still look back with wonder. In this school were nursed Columbus and Vasco de Gama, who extended our sphere of activity to the Eastern and Western Indies.

It must strike every thinking person as a remarkable circumstance, that the first product which proves valuable to traders in all ages is some article of food. The Italian traders had long been the purveyors of sugar and spices to Europe from the Levant. Spices were the chief article of trade with which Lisbon supplied us after the discovery of the passage round the Cape of Good Hope; they furnished an improved mode of treating animal food. The extent to which the trade in pepper is carried on is recorded by a declaration in a chronicle of Augsburg, that the house of Welser, of that city, owned pepper to the

value of 20,000*l.* on board a Spanish fleet that was destroyed by the Dutch in the war of independence. The reason why food is so powerful an engine is, that it releases labour from the cultivation of the soil, to be employed in other branches of production. How far the command of such vast mercantile resources favoured the extension of the power of Charles V. over one half of Europe, historians have not as yet inquired. It is however certain that the Venetians, who had long been jealous of the Spanish trade, and sought, in a very modern spirit, to repress it by high differential duties, owed the destruction of their political power to this absurd policy. It is striking that, even then, no part of Europe sympathized with the destroyed monopolists.

But the great stimulus that trade received in the fifteenth century was owing to two inventions that are scarcely less remarkable for their results than the discovery of the magnetic guide,—printing and paper-making. To these inventions we owe the power of extending associations across the barriers that political distinctions, mountain-chains, and oceans interposed between men. From a mistaken fear of this new instrument of power, its influence, like that of all progress, was at first viewed with jealousy and dread. Its enemies could not at once seize the fact, that the very circumstances which prevented political barriers from being felt as a restriction, must tend to confirm their duration. Had the policy of courts conformed to this view, and had they made the right use of the weapon thus proffered to them by the trader, there would have been as few changes in the divisions of political power, since paper became abundant, as there have been in the denominations and the size of coins.

The primary feature of the new element which paper introduced into trade, was the employment of concentrated associated capital in commerce. The great houses,—amongst which the Medici at Florence, the Fuggers and Welsers of Augsburg, and our own Sir Thomas Gresham, the founder of the Royal Exchange and of a College in London, are conspicuous,—were the levers of the great commercial enterprises that embraced the empire of Russia, North and South America, and the East and West Indies, in the reign of Queen Elizabeth. From that period, the trader, although in a great measure emancipated from the union which formerly tied his movements to the wheels of governments, in reality also emancipated the governments from their dependence upon him. The power of trade became

so much enlarged, that even political follies and vices could not destroy it. The wickedness and absurdity of courts and ministers interrupted its progress, and caused losses both to individuals and to nations. Still the share of prosperity enjoyed by Europe from trade, under all its restrictions, has ever been great since the commencement of modern history, in comparison with what nations commanded at any previous epoch.

It is to this fact that we owe the patience of the people under the numerous and conflicting economical experiments that have been tried at their expense. But the increase of population—the unfailing spur to progress—has at length broken up the schools which, on artificial foundations, pretended to create systems of restricted trade more beneficial than the humanizing intercourse which Providence has ordained to be as beneficial, when it is as free, as the light of heaven to all.

I shall not detain you with an inquiry into the merits of the various systems of “physiocrats,” “economists,” and “national protectionists.” We are now in an age about discarding all restrictions on enterprise, all narrow calculations. To this we are forced by the necessities of an accumulating population, for which these schools of economists have been found incapable of providing. But as the main impression that we have inherited from them is a dread of competition, as injurious to individual, although not so always to national interests, I have given my reasons for assuming that the competition induced by trade—that of one nation with another—is not injurious to either. To what class can the utmost competition be regarded as dangerous? To the agriculturist? We have seen that agriculture is constantly changing its character in every country,—that the gross crops of grain and fodder are banished from one soil to another, by the demand for more remunerating products from the soil that demands the most expensive cultivation,—consequently, that such a change entails no loss, where it is studied and taken advantage of. Whatever facilitates such a change must benefit both landlord and farmer, and it is upon this ground I expressed my expectation that they will lose no time in putting the agriculture of these islands into the condition of benefiting by the competition that would cheapen corn and sugar.

Can competition injure the manufacturer? His occupation offers, like agriculture, a series of divisions, each of which is benefited by the cheapening of the process that precedes it. Thus

the millowner gains by all reductions in the price of engineering : the engineer is served by improvements in mining. How is the miner served by competition ?

Besides the cheapening of all articles of consumption consequent upon the improvements that result from cheap mining, the miner has, if his trade be interfered with, the new branches of production to resort to for which demand is created by the savings of all parties. Should a miner, who has invested capital under some false system of protection, complain that he is not indemnified for his loss by the power of changing his occupation, the reply is, that it is more essential to prevent others from incurring a similar loss than to bear him harmless. Whether he has a claim on the legislative body, whose wisdom led him astray, or not, I cannot decide ; he can have no right to demand the continuance of a system which must lead others to destruction. The indemnity paid to slave-owners is a curious case in point, upon which history will sit in judgement.

But can the operative lose by competition ? If the fund created by savings, whether in manufactures or agriculture, has no other destination than to be spent in additional consumption, the demand for labour to supply the additional articles thus sought must increase the price of labour. Thus wages must rise, while their value in purchasing will be augmented. No operative therefore, who knows his own interest, will seek anything but the fullest and most general competition, for this is the grand stimulant to wages.

If competition be admitted to create wealth, instead of ruining the country that is exposed to it, we should act prudently in courting it for such objects especially as lend value to all others when they are cheapened in price. I pointed out two objects as chiefly influencing the powers of production and consumption in every country—grain and metals. Grain feeds the workman, metals furnish him with tools. We shall have reason to rejoice at the prospect of abundant supplies of both of these indispensable objects, and a reference to the map will disclose where they are to be bought on the best terms.

Besides the large quantity of rice and cocoa that can be obtained from tropical climates, and which form the most nutritive food that man can enjoy, more populous districts in Europe possess the means of supplying us largely with wheat, for which they would take our manufactured goods in return. Of these,

the most accessible are the southern provinces of Russia on the Black Sea, to which we have seen that, from the time of the Phœnicians of old, all grain-importing lands have constantly resorted. The low lands of Podolia and the Ukraine are a vast level district, which were once unquestionably submerged by the ocean, and are still saturated with salt and soda, which in the vegetable soil is a prolific source of fertility. Mr. Jacob, in his reports, has stated that grain grown in these parts can be delivered at Odessa at 14*s.* 6*d.* per quarter. From personal knowledge of a second similar district, the plain of the Theiss in Hungary, which Mr. Jacob did not visit, I firmly believe this to be the case. I copied from a farmer's books in the Banat, the estimated cost of the production of wheat, and found that it did not exceed 11*s.* per quarter. This fertile district is growing rapidly populous, and, were the communication with the sea by a railroad which was proposed in the last Hungarian Diet realized, wheat could be delivered at the Hungarian port of Fiume on the Adriatic at 15*s.* per quarter in average years. A desire to open this market for trade, that would bring us into direct contact with a population of fifteen millions of Hungarians and of Turkish subjects, led to the last treaty concluded with Austria in 1839. This treaty proved a failure, on account of a geographical error upon which it was based; for it assumed the Danube to be the outlet for Hungarian trade, whereas all the wheat of the Banat in Hungary is shipped at Fiume on the Adriatic. The error led to the awkward seizure of the only two Austrian vessels that attempted to trade under its provisions. But this untoward circumstance extended our commercial knowledge; for as the cargoes of these vessels were found, on inquiry, to be Wallachian instead of Hungarian, the fact was proclaimed in England that Wallachia could export corn as well as Hungary. As these three districts alone contain an area, available for growing wheat on the cheapest terms, of far greater extent than the British Isles, the chance of a cheap supply is improved by the prospect of its being a regular one. The climates are also different in the cycles of their seasons, and the resources of Wallachia and the adjoining provinces were first discovered in Turkey when a failure of the grain crop in southern Russia cut off the supplies from Odessa, on which Constantinople until then depended. Russia has itself two distinct climates, as was proved in 1838, when, the harvest having failed on the lands near the Upper Wolga, wheat was sent from Odessa and Dant-

side to St. Petersburg. To these well-known resources in Europe, it is scarcely necessary to add the vast uncultivated tracts of Asia, Africa and America, in order to prove that any distress which we experience from scarcity of food is clearly the result of choice and not of necessity.

Next to supplies of food, Providence has furnished man with the most abundant supplies of iron. By a strange fatality, the aberration of reason which so often induces famine in countries that are best able to command supplies of food, constantly dooms men to inefficient labour from want of tools in countries where iron is most abundant. The erroneous notion that England is specially favoured, by abundance of iron in immediate contact with fossil coal, is fast dispelling before the spread of knowledge. In Belgium, in the districts of Aix-la-Chapelle, and of the Ruhr, on the Upper Moselle, and in Silesia in Prussia, coals are as abundant, and as cheaply raised in sufficient contiguity with iron, as in any part of England. The coal-beds on the Upper Moselle and the Saar extend into France, and furnish materials for the engineers of Alsace. The name of Koechlin of Mühlhausen, and that of Cockerill of Liege, are perhaps better known in the most remote parts of Europe than any single English firm; and when orders are in the market, it is not often that anything short of a very low price will secure them for our workshops.

But these districts, which are the best known to us, give a very small insight into the mineral wealth of the continent. The chain of the Alps, from the boundary of the Austrian empire towards Switzerland to where these mountains run out towards Hungary, is abundantly supplied with ores of all kinds. Amongst these, the iron ores of Stiria and Carinthia are prominent for the superior quality of the metal. I have seen cylinders at Vienna that were made in Carinthia for the mint of Stockholm,—assuredly a curious testimony on the part of Sweden to the superiority of the iron of another country. At Vienna a hanging bridge is constructed of this material, which weighs but two-thirds of the burden of a chain-bridge near it that was constructed in England of ordinary iron.

Entering Hungary, we find the Carpathians charged with veins and beds of metal of a similar superior quality. Amongst the names of the Austrian nobles who, as I said in my last lecture, supplied the place of manufacturers by establishing works on their own estates, I mentioned that of Prince Coburg, the uncle of the

Queen of England. This prince has iron-works on a large scale, which are managed with a skill not easy to be surpassed. They are situated on his large estates in the mountainous districts of northern Hungary; and when the communications are improved, which in that country is an easy matter, we shall probably find that we have submitted so long from mere ignorance to the monopoly which Sweden has hitherto maintained of our market. Since we have no more a monopoly of iron than we have of food, we possess no advantage over our neighbours beyond security of property and a better manufacturing organization than they now possess. In my last lecture I pointed out the danger of disturbing this organization; and if any are inclined to make light of the warning, it may be enforced by a description of the means that have been resorted to on the continent within the last five years for making these resources available.

The invention of ships, as we have seen, emancipated the sea-faring countries of the world from dependence upon rich soils and fine climates: it became possible, by judicious exchanges, to procure food and other necessities on an unproductive rock at a cheaper cost than they could be produced together by either of the exchanging nations. This invention was rendered more powerful by the addition of the mariner's compass. The invention of these maritime machines transferred power from the land to the ocean. The supremacy at sea was rendered, by the art of navigation, the throne of political ascendancy. The reason why this was the case I have already explained: it was because the trader is the most powerful ally that a ruler can attach to his cause.

The invention of roads to be travelled by the agency of machinery has restored the balance that was thus disturbed. The largest continent is clearly independent of maritime aid, when it adopts this means of making its resources available, however distant they may be from each other. Of the power created by this exertion of intelligence, the map again instructs us.

In the course of the present year a railroad will be completed from Hamburg to Saxony, which branches off in one direction to Berlin, and is continued in another to Silesia: thus the Saxon manufacturers can now reach Hamburg in one day, whereas but last year the communication demanded weeks, and often months. The Silesian iron, cloth and cotton works have not this outlet alone. A second, passing along the valley of the Oder, connects

